People and the Sound

AN ECONOMIC PERSPECTIVE

A Special Report prepared for the New England River
Basins Commission by the U.S. Department of Agriculture,
Economic Research Service; and the U.S. Department of
Commerce, Bureau of Economic Analysis

New England River Basins Commission

The Long Island Sound Regional Study is a "level B water and related land resources study." It was conducted under provisions of the federal Water Resources Planning Act of 1965. The Plan which has been developed was prepared by a team of federal, state, and regional officials, local citizens, and the scientific community, under the overall coordination of the New England River Basins Commission. It is a part of the Commission's comprehensive, coordinated joint plan for the water and related land resources of its region, which includes New England and the New York portions of Long Island Sound

The plan for Long Island Sound recommends a program for action by federal, state, and local governments; it does not bind them to undertake specific recommended actions. To assist in the evaluation and implementation process, the following reports have been prepared:

A PLAN FOR LONG ISLAND SOUND: A SUMMARY. Highlights of the plan and a brief discussion of the rationale leading to recommendations.

A PLAN FOR LONG ISLAND SOUND: SUPPLEMENT. A more comprehensive planning document which enumerates the major alternatives considered in formulating the recommendations, together with an explanation of how the plan was prepared, who did the work, and background information organized both by subject matter and by geographical sub-regions of the Study Area.

PLANNING REPORTS. Each planning report was developed by a "Work Group," chaired by a federal agency, with the active participation of state and local agencies, other federal agencies and citizen and scientific advisors. These reports incorporate data (originally published in a series of Interim Reports) which estimate people's demands for the resources of the Sound region, the requirements needed to meet those demands, the existing capacity of the region to meet the requirements, and any deficiencies noted

The second half of each planning report develops solutions by stating objectives in terms of satisfying defined needs, suggesting alternative ways to achieve the objective, evaluating each alternative in terms of environmental, economic, and social criteria, developing economic, environmental, and composite plans, and finally making recommendations.

The following Planning Reports were prepared

Water Management by the U. S. Environmental Protection Agency, and the States of New York and Connecticut.
Land Use by Ralph M. Field and Associates for the U. S. Department of Housing and Urban Development
Outdoor Recreation by the U. S. Department of the Interior, Bureau of Outdoor Recreation.
Fish and Wildlife by the U. S. Department of the Interior, Fish and Wildlife Service; and the U. S. Department of Commerce, National Marine Fisheries Service.
Shoreline Appearance and Design by the U. S. Department of the Interior, National Park Service and Roy Mann and Associates.
Marine Transportation by the U. S. Department of the Army, Corps of Engineers.
Power and the Environment by Federal Power Commission staff.
Mineral Resources and Mining by the U. S. Department of the Interior, Bureau of Mines
Flood Damage Reduction by the U. S. Department of the Army, Corps of Engineers; and the U. S. Department of Agriculture, Soil Conservation Service
Erosion and Sedimentation by the U. S. Department of the Army, Corps of Engineers; and the U. S. Department of Agriculture, Soil Conservation Service
OTHER REPORTS published in conjunction with the Study are

An Economic Perspective by the U. S. Department of Agriculture, Economic Research Service; and the U. S. Department of Commerce, Bureau of Economic Analysis An examination of the economic and demographic trends in the region, with data for use as the basis of all projections made in the Study
Shoreline Appearance and Design: A Planning Handbook by Roy Mann Associates, Inc., for the U. S. Department of the Interior, National Park Service. Recommended management procedures for protecting and enhancing the region's scenic resources
Sources and Movement of Water by the U. S. Geological Survey, Water Resources Division; and the National Oceanic and Atmospheric Administration A summary of the hydrology and climate of the region.
Soils by the U. S. Department of Agriculture, Soil Conservation Service An inventory and analysis of soil composition in the region.

For a complete listing of reports published by or in conjunction with the Study, see Appendix A of the Supplement. Copies of these reports are available from:

New England River Basins Commission
55 Court Street
Boston, Mass. 02108

National Technical Information Service
Springfield, Va. 22151

THE LONG ISLAND SOUND REGION

An Economic Perspective

Long Island Sound Regional Study
New England River Basins Commission
270 Orange Street
New Haven, Connecticut
06511

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A Special Report
Prepared by
The Economic and Demographic Work Group
of the
Long Island Sound Regional Study

July 1974

FOREWORD

Planning for the orderly development of land and water resources in the Long Island Sound Region requires an understanding of many diverse forces interacting in the area, including social, economic, environmental and political considerations. The purpose of this report is to focus on the economic and demographic structure of the region, presenting historical data on the changes that have occurred and estimates of potential future changes in the region in terms of population growth, industry mix, and income patterns. It thus emphasizes potential future demands upon the resources of the region and does not address the supplies of resources in the region and their implications for limits on growth.

Drawn mainly from existing information, this report provides planners with a handy reference resource for economic data concerning this region. It also shows some of the interactions of economic factors with the natural resource base.

Information presented represents the collective efforts of the Economic and Demographic work group members. The major contributors are Lee A. Christensen, Co-Chairman, Economic Research Service, USDA; John H. Stierna, Co-Chairman, Bureau of Economic Analysis, DOC; Pearl Kamer, Nassau-Suffolk Regional Planning Board; Randolph M. Stelle, N.Y.S. Dept. of Environmental Conservation; Dr. Edith G. Tanenbaum, Nassau-Suffolk Regional Planning Board; Ik Sung Kim, Tri-State Regional Planning Commission; Edward Butler, State of Connecticut, Planning and Budgeting Division; Carol Sondheimer, N.Y.S. Office of Planning Services.

INTRODUCTION AND SUMMARY

Can the Sound be saved? Do power plants really have to be constructed here? Will our fresh water supply run out? Can't we stop the dredging? Shouldn't we have enough recreation land to serve the public? How can additional jobs be created to provide employment opportunities? These are difficult questions; controversial questions. Yet the issues they address are of such importance that these kinds of questions have been raised, time and again, in the Long Island Sound Region.

There are no simple answers to these issues. But the economic and demographic work group has evaluated a substantial amount of information on important economic forces that the public, elected officials, and local planners can use in addressing these problems. This report presents some of the information that bears on the extent and nature of demands placed on the region's natural resources.

Future growth in economic activity may reflect past trends, or a somewhat faster or slower trend. For any of these alternative growth trends certain benefits and limitations will exist. They must be considered and weighed by responsible public officials, and deliberate actions must be taken to alter future growth patterns if that is believed to be desirable. This report, together with other reports prepared as part of the Long Island Sound regional study, are necessary inputs to making and implementing responsible public decisions on the region's future.

THE GROWTH ISSUE

Of the many potential measures of regional growth, perhaps population is the most easily grasped by the decision makers and the public. Population growth has generally been associated with more jobs, larger payrolls, more local business activity, increased congestion, pollution, crowded beaches and highways, etc. The rate of population growth and the resulting number of people is of particular significance for water and related land resource planning. Households use water for drinking, cooking, bathing, cleaning, toilet flushing and lawn sprinkling. We can therefore anticipate rising demand for water as the number of households increase along with additional population. Power use and recreation demand, similarly increase with population growth. As industrial firms increase output to meet rising consumer demands, waste loads increase leading to disposal problems. It is clear that population growth will, either directly or indirectly, require more and more resource-based goods and services in the future. However, the absolute limits of the region's resources to sustain population growth and economic activity are not known.

Population growth is not an isolated phenomenon, easily influenced by governmental policy -- at least not in our form of democratic society. However, some ways of effectuating change in population growth are recognized and considered in the planning process.

National population growth is determined primarily by the excess of births over deaths, although some immigration from abroad does occur. Governmental policies and programs have little influence on growth at this level except to the extent that governmental policy may either constrain or assist individuals as they make their own decisions on birth control.

Natural increase (excess of births over deaths) is also significant on a regional level, but net migration plays a more important role compared to migration on a national level. People move from one region to another partly because of economic conditions. They move to find a new or better job, to go to school, or to retire in a pleasant community. Governmental programs and policies could influence these movers by providing the economic climate and incentives that influence industrial location decisions and thereby determine job opportunities.

Population growth in local areas, such as specific parts of the Long Island region, is determined by natural increase and net migration patterns. Locally, however, many people may move to a new residence in the next community or county, but continue to commute to the same job. Governmental programs and policies have had, and probably will continue to have, a profound effect on population growth of local areas. All levels of government, in some way, influence the availability and cost of housing, transportation, public services, recreation opportunities, and amenities — the factors that directly influence if, when, and where people will move.

This report presents national, regional, and local area baseline projections of population to assist planners in dealing with these issues.

Much of the immediate study area is linked to the regional trends for the New York metropolitan area. Through proximity and existing economic linkages, New York is related to the evolving constellation of urban regions called the Atlantic Seaboard metropolitan belt. Even with a low birth rate, more than one-fifth of the nation's population will probably reside in this urban belt by the year 2000. The Long Island Region — including New York City - will grow in the future, but at a rate slower than this larger metropolitan belt.

Assuming a relatively low birth rate of 2.1 children per female, the overall economic region for the Long Island Sound Study is projected to have about 17 million residents by the turn of the century, or 3.5 million more than in 1970. The 26 percent increase between 1970 and 2000 is less than the 30 percent increase anticipated for the nation. These projections necessarily assume that past trends in regional economic conditions will continue into the future and that natural resources will not constrain future growth.

Translating these region-wide trends into resource planning requires further geographic detail for the projections. The report contains county and subcounty allocations that show where growth pressures are likely to be greatest. In fact, by considering the local area projections, planners are able to consider alternative programs and policies that could, if implemented, signi-

ficantly spur or dampen future population growth in these local areas. Of course, actions intended to dampen growth in one area are likely to increase the growth pressures in other parts of the Long Island Region.

The local area projections reveal that significant differences can occur in population growth from town to town — as has happened in the past. Some areas are growing from such a small base that percentage changes may be very high. Some established areas with close proximity to the urban centers are projected to grow very modestly or to decline.

The regional and local area projections are not offered as desirable growth goals or targets. They carry no connotation of desirability or undesirability. They are policy neutral. Cannot planners therefore consider alternative forecasts of the future? In one portion of the report, the baseline projections are compared to planned population capacity estimates prepared by the Tri-State Regional Planning Commission. Regional and local goals, values, and developmental policies are considered and incorporated into these planned capacity estimates. Generally, the baseline projections exceed planned capacity on Long Island proper and are less than capacity in Westchester County, New York and most planning regions of Connecticut. If the planned capacity estimates are assumed to reflect a public consensus of allowable growth, the greatest conflict between growth pressures and planned capacity will be in Suffolk County, New York. Because of the growth pressures on Long Island and the fact that the Island is effectively bounded by water and New York City, transportation and land use would seem to be prominent issues for careful analysis. Planners will be aided by the special analysis of the Long Island economy contained in Chapter 3. The analysis of the Connecticut portion of the region will assist planners trying to cope with resource issues of concern along the Connecticut shore.

THE ECONOMY RELATED TO RESOURCE PROBLEMS

Some of the specific issues of concern to the overall Long Island Sound Study — such as power plant siting, oil unloading facilities, disposal of dredging spoils, water quality on the western half of the Sound and commercial fisheries problems — can be better addressed with information on industrial mix and projected levels of economic activity. Chapter 4 provides this information. Notice, for example, that the primary metals industry, one of the relatively large users of electric power per dollar value added, is not a particularly dominant industry in the study area generally but it is of some importance in New Haven county. The chemical industry uses relatively large amounts of energy and water per dollar value added. It also contributes a reasonable share of total earnings to the study area, especially in Middlesex and New London counties in Connecticut.

The region in total is continuing to shift towards a heavy dominance of service industries relative to manufacturing. For example, the service industries accounted for 21 percent of all industry earnings in the region compared to a 15 percent share nationwide. By the year 2000, the services share will be 28 percent in the region and 22 percent nationally. Certain opportunities for land use planning, such as office complexes, seem to be available in light of this shift in industry mix.

Analysis of the water and related land resource problems associated with specific industries should be considered in the various planning reports being prepared by other study participants.

GUIDELINES FOR USING OBERS PROJECTIONS

The Long Island Study must deal with many resource problems and issues that stem in part from the metropolitan character of the region. The severity of these problems depends, in great part, on the region's growth prospects, which, of course, is the subject this report addresses. The growth projections are not predictions of what will come to pass. Instead, they represent a conditional forecast of future trends in the absence of fundamental policy or program changes. Because the Long Island Sound Study is intended to precipitate policy and program changes to solve resource problems, the region's future growth will, in all probability, be different relative to the baseline projections. The intended use of the projections is as a baseline or initial set of parameters to aid in identifying and evaluating various program or policy proposals.

Use of the growth projections for this purpose -- as an initial basis for plan formulation -- requires an understanding of the baseline concept. As stated in the report, the projections are not goals, assigned shares, or constraints on the region's economic activity. Planners or decision makers should consider alternative levels of growth which can be achieved through program planning. If that is achieved, the baseline projections will have accomplished their intended purpose and will subsequently be replaced by a new baseline that reflects the trends resulting from the adopted plan and its specific programs and policies. Through this reiterative process, planning is dynamic and responsive to changing public policy and governmental actions.

IMPLICATIONS FOR PLANNING

Several implications drawn from the projections contained in this report are:

* The growth projections included in this report reflect the growth forces at play in the region and nation. Future levels of population and economic activity in the Long Island Sound Region will be interrelated to the overall growth pattern of the Atlantic Seaboard Metropolitan Belt. Not only will employment opportunities and income levels depend to some extent on this larger metropolitan belt but higher levels of demand on the resource base can also be anticipated because of the close proximity and economic interdependencies. Planners, therefore, must consider the demand upon the region's resources from people living outside the Long Island Sound Region.

* Alternative policy decisions may be able to influence the rate and spatial distribution of growth through first changing the underlying forces that provide the momentum for present trends. Growth will neither halt abruptly nor accelerate sharply unless these underlying growth forces are modified by

national programs and policies or by state and local governmental actions. Even deliberate actions to modify growth will require a certain lead time before the response could be noticed.

*   The growth projections imply demand increases that will exert upward pressure on prices (e.g., housing) and lead to a greater intensity of development -- perhaps resulting in the degradation of the living environment that people really desire. Public policies must be used judiciously to moderate upward pressure in prices and to regulate future developments in conformance with comprehensive plans that are environmentally and economically feasible.

*   Due to the increased intensity of future resource demands and discernible limitations on supply capability (e.g., land area is generally fixed), methods of concentrating and directing certain types of growth merit serious consideration. Public influence or control over land use is critical to maintaining and improving the quality of the Sound because the quality of the waters in this region will be dependent on regional growth prospects and related land developments, public sewer facilities and industrial waste loads.

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1.0 ECONOMIC AND DEMOGRAPHIC FORCES IN THE LONG ISLAND SOUND REGION

Water, land, minerals, and other natural resources are used by man to serve the needs of people, industry, and commerce. An understanding of the interrelationships between the supply of and demands for natural resources is important for successful planning efforts in the Sound region.

The linkage between economic and demographic factors on the one hand, and natural resources on the other, is most apparent in terms of aggregate levels of demand. More people, industry, and commerce increase the need for water, land, oil, and other resources. For example, Figure 1 shows the potential future trend in total water withdrawal for all uses for the United States under three alternative rates of population and related economic growth, reflecting Levels B, C, and E fertility rates. These indicate the variation in the aggregate rate of water use that would result from different national rates of population growth, income, industrial production, productive efficiency, irrigation, and power generation. By extension, it is clear that demands for resources in the Long Island Sound region will be dependent on how much growth will occur in population, employment, and income.[1]

FIGURE I: Rates of Water Withdrawn in the United States with Alternative Future Growth Assumptions
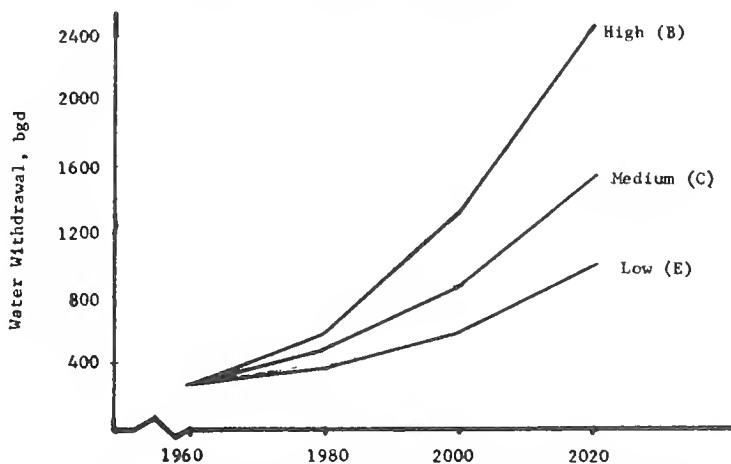
Source: Russell G. Thompson, et al. Forecasting Water Demands, a report prepared for the National Water Commission, November 1971, p.218.

Economic and demographic factors will also influence the spatial distribution of demands within the region. For example, if more growth were to occur in Connecticut relative to New York, water supply problems would be less severe because demands would be more closely located to available larger water supplies. Future growth on Long Island is a serious concern because there is a limitation on how much water can be withdrawn from its aquifers.

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[1] Specific calculations of demands for water, electric power, recreation, etc. for the Sound study region are contained in reports developed by other work groups involved in this study.

Demands for resources are also dependent on the economic and demographic forces in the region. Younger families for example, may desire more recreational facilities for swimming and boating compared to persons of retirement age. Income differences also affect the extent of demand for recreational opportunities among alternative forms of recreation. Further, an employed person who commutes a long distance by auto every day will probably rate energy as more important than sand and gravel demands.

1.1 Demographic Forces

Population enters into the planning process, as part of the concern about absolute levels and the attendant pressures upon area resources. This feature of the population can appropriately be termed demographic forces.

By looking at the entire eastern portion of the United States, the first major demographic force concerning the study region is clearly visible. The study region is situated in the middle of a constellation of urban centers ranging from Boston to Washington, D.C. Jerome Pickard, a noted demographer, calls this set of continguous metropolitan areas the Atlantic Seaboard metropolitan belt. Even assuming a low birth rate (Series E), Pickard projects that 57,000,000 people, or more than one fifth of the Nation's population, will reside in this urban belt by the year 2000.

One doesn't even have to look at the evolving urban mass along the Atlantic Seaboard to see the influence of population size. The study region is part of the most urbanized area of the Nation. More than 16 million people presently live in the New York-Northeastern New Jersey urbanized area — more than twice the number that live in the Los Angeles - Long Beach urban region. Scaling down even further, the Long Island Sound Study Region, as defined in Section 1.3, had 13.5 million residents in 1970. This is equivalent to the total population in Nevada, Arizona, New Mexico, Utah, Colorado, Idaho, Wyoming, Montana, North Dakota, South Dakota, Nebraska, and Kansas. Population density is great in the Long Island region; as many people live on the one tenth of one percent of the United States land area as in the twelve states identified above which cover 39.1 percent of the area.

The rate of population change is a critical demographic force affecting the study region. Rapid growth reduces the time available to implement ways of meeting demands for natural resource based goods and services. The Long Island Sound Study area, plus New York City, has experienced a population growth significantly slower than the nation since 1940 — and the differences in growth rates has been widening over time. In the 1959-1970 period, the region grew 10.3 percent compared to 15.1 percent for the nation. A general slowing of growth in the future is indicated by the region's low birth rate relative to the Nation and a smaller percentage of young children relative to the Nation. Median age for the Long Island region is also higher than that of the United States. These demographic trends will be analyzed further in the chapter on population.

1.2 Economic Forces

In addition to demographic forces, the study region has been and will continue to be heavily influenced by economic factors. These factors include industrial structure and affluence as expressed in terms of personal income.

Given the size of the region's economy, it is not surprising that it is highly diversified. Almost every industry, from agriculture to armed forces, has some representation in this region. The white collar and service sector has assumed a dominant position in the region, even more so than other areas in the nation. This includes business, professional services, finance, government, insurance and real estate. The apparel industry has traditionally been important in the economy but has been declining. Although industrial structure will be discussed in a subsequent chapter, a key point to note is that the white collar industries generally consume far less natural resources than do manufacturing operations. Commercial office space, for example, tends to be concentrated in multi level structures whereas manufacturing plants are usually single level facilities spread over a larger land area. Water use is generally higher in manufacturing operations compared to commercial enterprises. These tendencies foreshadow less resource demand per employee than would otherwise be the case with manufacturing industries dominating the region's economy.

The Sound region's affluence is significant. Per capita personal income in the region was 34 percent higher than the national average in 1970, down slightly from 38 percent higher in 1950. Despite this relative decline, the high per capita income in the region suggests that a somewhat greater demand for certain resources will exist when the income elasticity is greater than 1.0. Demand for recreation and electrical energy, for example, is positively related to income levels. To some extent, income levels also influence water use. It is clear, therefore, that the present affluence of the region's population brings about higher rates of resource use than what otherwise would occur.

Income levels also suggest a greater capability to finance certain corrective measures to deal with resource problems. User charges, for example, could be used to finance public purchase of recreation land where appropriate. Such an approach would encourage the public to make direct tradeoffs among the goods and services they desire.

Industrial structure, growth in industrial output, and affluence exert significant influence in the Long Island Sound Region in terms of resource demands and the ramifications for resource management actions should be considered during plan formulation.

1.3 Regional Delineation

The Long Island Sound Regional Study has delineated a study area that includes a narrow strip of Long Island's northern shore following hydrologic boundaries, a portion of the Bronx, Queens, and Westchester Counties, and regional planning regions in Connecticut that have close

proximity to the Sound. Although hydrologic delineation of the study area is necessary for physical aspects of water planning, economic activity and population growth is not limited by watershed boundaries. For this economic report, the work group has defined a larger area corresponding to the political units of counties, regions, and towns. Specifically, the economic study region includes the entire counties of Nassau, Suffolk, Westchester, and Rockland in New York, all of New York City, the Census defined county equivalents of Fairfield, New Haven, Middlesex and New London in Connecticut. In some portions of this report, reference is made to a smaller study area which includes the Connecticut planning regions in the LIS area and the immediate counties of concern in New York (Nassau, Suffolk and Westchester). This smaller area is far more suburban in character compared to the economic study region because New York City is excluded.

2.0 POPULATION PERSPECTIVE

The people living, working, and recreating in the Long Island Sound area are placing increasing pressure upon the natural resources of the area. Planning for the orderly development of the area is aided by an understanding of past trends and what the estimates for the future portend.

2.1 Historical Trends

The population of the seven counties in the Long Island Sound region represents a relatively small, but increasing share of the national population. It grew from approximately 1.9% of the nation's population in 1950 to 2.6% in 1970. This growth rate is reflected more explicitly in terms of the rates of change in population. The Long Island Sound Region population trends reflect a greater rate of increase than for the entire country. During the periods 1950-1960 and 1960-1970, population increased in the states of Connecticut and New York, the counties in the LISS study area, and the Nation. The greater rate of increase for the LISS region was during the period 1950-1960, when the population increased 54 percent compared to a 22 percent between 1960 and 1970. The rate of increase for the entire United States was 18 percent and 13 percent during the same periods (Table 1). Notable increases in the rate of growth occurred in Nassau County between 1950 and 1960 and in Suffolk County between 1960 and 1970. Both of these large increases reflect the movement of people away from New York City to the suburbs on Long Island.

The rate of population increase for the counties in the LISS region during the period 1950 to 1960 ranged from a low of 21 percent in New Haven County to a high of 141 percent in Suffolk County. Nassau County had an increase of 93 percent; the increase for each of the other four counties was between 28 and 32 percent. During the period 1960-1970, the rate of increase ranged from 11 percent in Nassau County (compared to 93% in the earlier period) to 69 percent in Suffolk County.

The total population for the four Connecticut counties increased at the same rate as for the state of Connecticut. However, the rate of increase for the three New York counties combined was almost six times the rate for New York State between 1950 and 1960 and almost three times the rate of increase between 1960 and 1970.

Year Area	Population				Increase		
	1940	1950	1960	1970	1940-1950	1950-1960	1960-1970
	- - - - 1000 inhabitants - - - - - - - -				- - - - - - - - - % - - - - - - - -		
Fairfield County	418.4	504.3	653.6	792.8	21	30	21
Middlesex County	56.0	67.3	88.9	115.0	20	32	29
New Haven County	484.3	545.8	660.3	744.9	13	21	13
New London County	125.2	144.8	185.7	230.7	16	28	24
4 County Total	1,083.9	1,262.3	1,588.5	1,883.4	16	26	19
Connecticut Total	1,709.2	2,007.3	2,535.2	3,032.2	17	26	20
Nassau County	406.7	672.8	1,300.2	1,428.8	65	93	11
Suffolk County	197.4	276.1	666.8	1,127.0	40	141	69
Westchester County	573.6	625.8	808.9	894.1	9	29	11
3 County Total	1,177.7	1,574.7	2,775.8	3,449.9	34	76	24
New York Total	13,479.1	14,830.2	16,783.6	18,236.9	10	13	9
LIS Total	2,261.6	2,837.0	4,364.4	5,333.3	25	54	22
U. S. Total	132,164.6	151,325.8	179,323.2	203,211.9	14	18	13

Source: U. S. Census of Population, 1940, 1950, 1960 & 1970

2.2 Future Outlook

Baseline Concepts. Baseline population projections have been prepared to present a picture of the magnitude and location of population in the Long Island Sound Region. In the course of evaluating these projections, existing projections from the numerous planning groups in the region were considered. A single set consistent throughout the entire region is presented for use as baseline projections. Projections based on alternative methodologies are presented and discussed in Appendix C.

The concept of a baseline projection is embedded in the water planning policies of the Water Resources Council. The term "baseline" denotes a statistical framework for use in water resources planning and evaluation.

Baseline projections are a best estimate of what can be expected to materialize if there are no policy or program changes of an unusual and unforeseen nature or magnitude in the factors which have caused growth and change. Identifiable long term secular trends are implicitly incorporated into baseline projections. These projections are policy neutral, to the extent they do not reflect local policies, goals, or environmental restraints on growth. They carry no connotation as to desirability or undesirability. Actions taken by public and private decision makers which depart from past trends will result in different growth patterns. They should not constrain the planner in considering alternative levels of growth which might be achieved through resource management or development.

The baseline concept provides a single set of projections consistent with national totals for use in plan formulation. Furthermore, the use of a single set insures a consistency between work group efforts. There is no reason why work groups cannot evaluate the effects of alternative levels of population projections on their plans. In fact, such a process tests the usefulness of the baseline projections and may lead to their subsequent revaluation.

Projected Population

Regional Projections. OBERS[1] baseline projections for the Long Island Sound Region are presented in Table 2. These are based upon national economic growth projections, disaggregated to smaller areas, and translated into population projections. The relatively low fertility rate in the Series E national population projections were derived from employment and earnings projections. Upon this assumption, there will be a gradual movement toward a total national fertility level of 2,100 births per 1000 women by the year 2000. These projections are based on historical trends in economic and demographic relationships and are consistent with national totals. It is recognized that the larger the area, the more reliable are the projections. Reliability decreases in progression from the economic area[2] to county level projections.

Appendix B discusses the OBERS projections in greater detail, along with an elaboration of the basic assumptions used for county level projections within the New York SMSA. These assumptions include:

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[1] The acronym of OBERS represents the unified projection effort of BEA's predecessor, the Office of Business Economics (OBE), Department of Commerce, and the Economic Research Service (ERS), U.S. Department of Agriculture. Details of the OBERS methodology are contained in 1972 OBERS Projections – Regional Economic Activity in the U.S., Volume 1., and also discussed in Appendix B of this report.

[2] The Nation is divided into economic areas defined using central place theory, which focuses on cities as hubs of activities around and within which integrated economic activity concentrates. One of the functional characteristics of these regions is that each combines its labor market and labor supply.

(1) New York City will be the nucleus about which future
    population growth will be arrayed.

(2) Nassau and Southern Westchester counties will become
    increasingly saturated in the near future, and housing
    costs will escalate. A greater share of future metro-
    politan growth will therefore be forced to the outer
    suburbs. However, this trend could be slowed or re-
    versed depending upon the energy situation.

(3) Natural resources will not constrain future growth
    unless the constraints are already reflected in his-
    torical trends. For example, the diminishing supply of
    ground water on Long Island is not reflected as a con-
    straint upon growth.

TABLE 2: Population Trends in Long Island Sound Study Region,
          by Area Selected Years 1950–2020 1/

AREA	1950	1959	1970	1980	1990	2000	2020
Total LIS Region	10,846.1	12,213.5	13,472.6	14,762.2	16,046.7	17,025.7	18,730.0
Fairfield Co.	506.5	650.4	794.6	893.9	990.5	1,068.5	1,203.0
Middlesex Co.	67.6	88.4	115.3	139.7	164.9	186.3	224.0
New Haven Co.	548.2	657.1	746.6	839.4	928.1	993.1	1,107.0
New London Co.	145.5	184.8	231.2	259.7	289.9	312.7	353.0
Total Conn.Region	1,267.8	1,580.8	1,887.6	2,132.7	2,373.4	2,560.6	2,887.0
Nassau Co.	674.3	1,292.6	1,428.8	1,580.4	1,677.0	1,719.5	1,794.0
Rockland Co.	89.5	136.0	230.1	332.9	520.9	611.9	770.0
Suffolk Co.	276.8	662.9	1,127.0	1,635.8	2,146.8	2,596.9	3,380.0
Westchester Co.	627.3	804.2	895.4	994.7	1,059.6	1,106.4	1,188.0
New York City	7,910.5	7,736.9	7,903.7	8,085.7	8,269.0	8,430.4	8,711.0
Total New York Region	9,578.4	10,632.6	11,585.0	12,629.5	13,673.3	14,465.1	15,843.0

1/ Based on Series E national population projections. Historical data and pro-
jections are midyear rather than April 1. Data prepared by Regional Economic Analysis
Division, Bureau of Economic Analysis, U.S. Department of Commerce.

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Small Area Projections. The plan formulation process is aided by population projections at the sub-county level. The planning regions delineated for the Long Island Sound Study follow town and regional planning association boundaries in Connecticut. In New York, the boundary follows hydrologic lines, which are not consistent with civil subdivision boundaries (Figure 2). The accuracy of economic projection techniques decreases markedly as the size of the projection unit becomes smaller.

Small area projections based on the disaggregation of OBERS county projections are presented in Table 3. Detailed town projections are presented in Appendix Table 1. Town projections for Connecticut take into account historical trends, particularly 1960-1970, land availability, and anticipation of little population growth in the central cities. The allocators used for Nassau and Suffolk counties are those implicit in area projections made by the Nassau-Suffolk Regional Planning Commission. Westchester county small area projections are based on the implicit shares in projections supplied by the New York State Office of Planning Services. Projections for subregions 6C, 7, 8 and 9 are based on estimates of the 1970 population of Nassau and Suffolk counties living in the hydrologic boundary area.

2.3 Population Analysis

Analysis of the Baseline Projections. In the absence of policy changes by public decision makers, future population growth in the overall economic region (including New York City and Rockland county) is expected to slow significantly, and also decline as a percent of national population growth. These projections, based on the relatively low Series E fertility rate of 2.1 children per family, show an overall region growth of about 26 percent from 1970 to the year 2000 whereas the national growth is expected to be close to 30 percent. Because metropolitan areas are expected to generally grow faster than the national average, the relatively modest growth in the region is significant.

The region's growth rate is projected to increase more slowly for the next two decades, a 19 percent increase compared to the region's past 20 year growth rate of 24 percent from 1950 to 1970. This decrease in the growth rate is projected to continue for the 2000 to 2020 period. Contributing to the lower rate of growth is the national pattern of fewer children per woman, with this effect accentuated in the longer terms by the fewer females of child bearing age. Also contributing to the slowdown in population growth is the decline in earnings per worker in the region relative to the U.S. average -- a trend that limits the incentives for immigration to the region. At the same time, the Long Island Sound Region has experienced a rather large net outmigration of persons 45 years and older, perhaps because of less favorable climate and living costs relative to other areas of the nation. A reversal of this trend is not likely. In fact, net outmigration of persons age 65 and older is projected to increase again during the 1970's relative to the 1960-70 period. The two subsequent decades will likely be comparable to the 1960's and 1950's respectively.
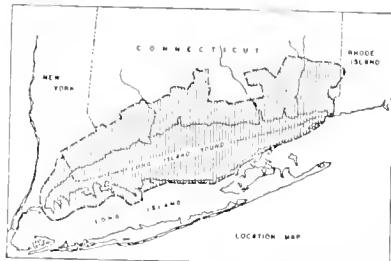
Figure 2: Long Island Sound Planning Areas
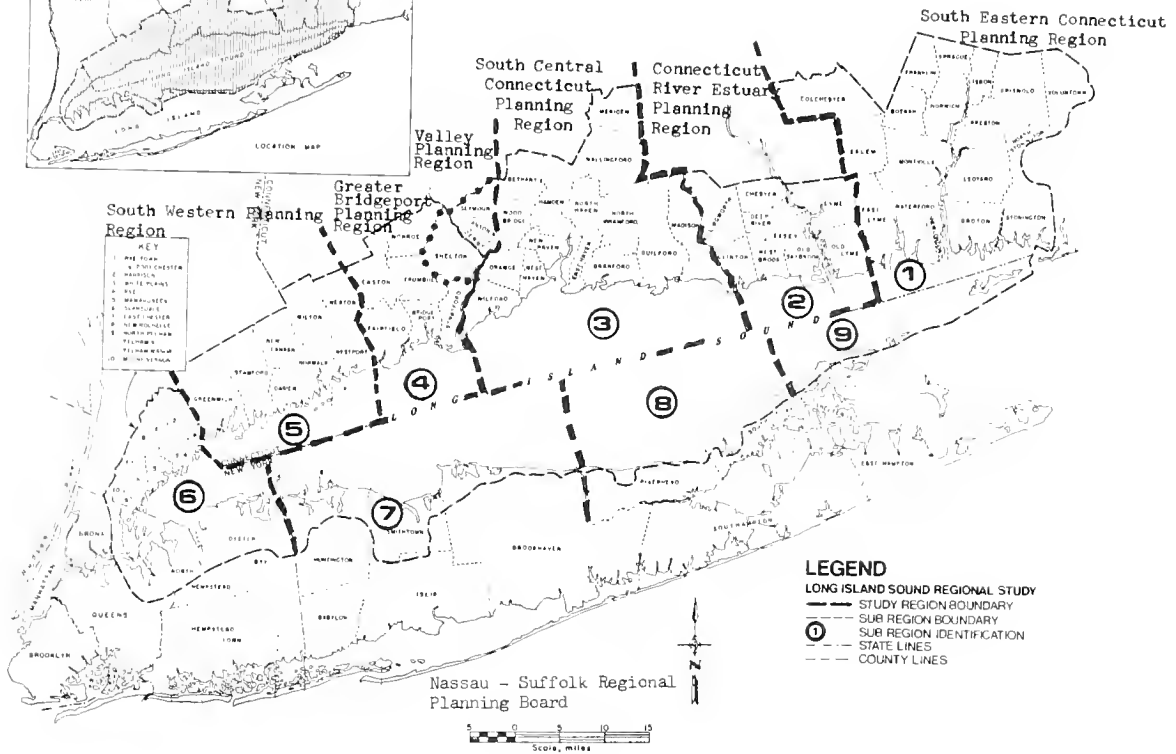
TABLE 3: Historical and projected population for Long Island Sound Study Subregions and Corresponding Areas [1] within Fairfield, New Haven, Middlesex and New London Counties

LIS Subregion	Planning Area	1960	1970	1980	1990	2000	2020
1	Southeastern Connecticut	179,060	220,402	246,100	273,900	294,500	332,700
2	Connecticut Estuary	26,733	43,021	59,600	74,200	85,000	102,000
3	South Central Connecticut Valley	448,505	507,837	563,600	615,900	652,200	726,800
4	Greater Bridgeport Valley	278,131 60,241	311,130 73,700	343,900 88,000	369,900 102,600	383,300 117,400	411,100 132 600
5	South Western	279,204	333 935	373 900	406,600	431,100	505,300
6a	Westchester County [2]	368,972	380,000	389,824	382,838	370,203	396,792
6c	Nassau County [2]	159,921	175,746	194,389	206,271	211,499	220,662
7	Suffolk County [2]	124,689	210,755	305,895	401,452	485,546	632,060
8 & 9	Suffolk County [2]	2,667	4,508	6,543	8,587	10,386	13,520
	TOTAL	1,928,123	2,261,034	2,571,751	2,842,248	3,041 134	3,473,534

[1] Source: OBERS Series E County Projections disaggregated to the town level and reaggregated to LIS subregions and Regional Planning Areas.

[2] Portion of county within LIS hydrologic boundaries. It is assumed that 12.3% of the Nassau County population resides in region 6c, 18.7% of the Suffolk County population is in region 7, and that .4% of Suffolk County population is in regions 8 and 9

Population changes within the region are expected to increase Suffolk and Fairfield counties share of the region's population. If local policies in these areas are designed and implemented to reduce future growth, there is likely to be additional population pressure elsewhere, probably in New Haven county and perhaps northern Westchester and southern Putnam counties where topography permits. New York City and Nassau county are projected to grow very slowly because of present high population density. Future growth would occur through some subdivision and infilling in estate areas, rebuilding on land where structures are obsolete and through height increments where present structures and present zoning ordinances allow. New London, being relatively isolated from the New York metropolitan area, will grow primarily as a function of its own economic base and spinoffs from Hartford, Connecticut and Providence, Rhode Island.

The baseline set of population projections indicate, provided past trends continue and no major resource or population policies are implemented, that population in the seven county area will increase 54 percent between 1970 and 2000. There are variations in the relative changes in the counties, as shown in Table 5.

Baseline Projections and Planned Capacity. As noted, the preceeding OBERS baseline projections do not reflect any judgments as to what may be an ideal population level in any particular area. In contrast to these projections, several planning agencies related to the Long Island Sound have made estimates of population that incorporate certain values, goals, and development patterns as reflected in planned capacities. The Tri-State Regional Planning Commission has developed planned capacity estimates for its area. Work is also underway in the State of Connecticut to quantify policies in its proposed Plan of Conservation and Development to develop capacity estimates.

The purpose of this section is to illustrate the differences between the projected population (as detailed in the foregoing section) and the population targets for "planned capacity" provided by Tri-State Regional Planning Commission. These targets are currently being used as tools for future planning policy in most of the Long Island Sound Study area. Unlike the trend-based projections, the "planned capacity" estimates are derived on the basis of duly adopted regional values, goals and policies, and through negotiation toward concurrence with sub-regional planning agencies.

Before comparisons are made between the two sets (OBERS projections vs. Tri-State's plan), it is necessary to look at how Tri-State's "planned capacity" is derived and used in the actual planning process.

Tri-State's planning target for capacity population in each Connecticut planning region and New York county is derived from the Commission's Regional Development Guide. The Regional Development Guide is a quantified land use plan in which development trends are balanced with planning goals, principles and concepts.

For delineating and measuring its development plan, the Tri-State Region is divided into a grid of 8,456 square miles. The Long Island Sound Study Area makes up about 45 percent or 3,775 square miles of the Tri-State Region.[1]

TABLE 5: Index of OBERS Population Trends in the Long Island Sound Study Region, by Area, Selected Years 1970 - 2020

	1950	1959	1980	1990	2000	2020
	- - - - - - - Index -- 1970 = 100 - - - - - - - - - - - - - -					
Total LISS Area [1]	52.8	80.8	117.7	134.4	147.5	169.9
Fairfield	63.7	81.9	112.5	124.7	134.5	151.4
Middlesex	58.7	76.7	121.2	143.0	161.6	194.3
New Haven	73.4	88.0	112.4	124.3	133.0	148.3
New London	62.9	80.0	112.3	125.4	135.3	152.7
Connecticut	67.2	83.7	113.0	125.7	135.7	152.9
Nassau	47.1	90.1	110.5	117.2	120.2	125.4
Rockland	38.9	59.1	144.7	226.3	265.9	334.6
Suffolk	24.5	58.8	145.0	190.3	230.2	299.6
Westchester	70.1	89.8	111.1	118.3	123.6	132.7
New York City	100.1	97.9	102.3	104.6	106.7	110.2
New York	82.7	91.8	109.0	118.0	124.8	136.7
New York [2]	45.0	79.1	120.3	139.2	154.0	179.1
Total Area [2]	80.5	90.6	109.5	119.1	126.3	139.0

1/ New London, New Haven, Middlesex, Fairfield, Westchester, Nassau, & Suffolk Counties

2/ Includes Rockland County and New York City

Each square mile's mix of existing land uses, residential land with dwelling units, non-residential land and floor space, streets, recreation space, other land reservations, swamp and vacant, was inventoried in 1963 and updated for 1970. The planned future content of each square mile is measured in the same categories. The average future density of development in each square mile was calculated as a function of its accessibility to every other part of the Region. Other measures of developability--density, percent development, and vacant land available--were later combined with accessibility as inputs to the determination of the rate of development or redevelopment in each square mile. Through this land development system, population estimates at planned capacity were derived. Capacity of development is taken to occur at that time in the future when all the Region's land would be in use for a definitive and permanent purpose.

1/ The Tri-State Region does not extend into the eastern Connecticut portion of the Long Island Sound study region and thus does cover subregions 1 and 2.

There has been cross-acceptance of land use plans between Tri-State
Regional Planning Commission and each of the subregions in the Long Island
Sound Study Area, excepting New York City and Valley planning regions in Con-
necticut. However, cross-acceptance with these agencies is anticipated in the
near future. What this means is that the policy body of each of these subregions
has officially, by resolution, accepted Tri-State's Regional Development Guide
and the capacity targets. The targets are recognized as being generally consistent
with their local planning and are accepted as conceivable goals for long range
planning. Likewise, the Tri-State Regional Planning Commission has officially
recognized and incorporated into the Regional Development Plan the land use plans
of the subarea.

Considering the basic differences in derivation of projection numbers
and planned estimates, differences in the results are to be expected. Moreover,
OBERS projections provide population at specific points in time, whereas
Tri-State's targets for planned capacity are not linked to specific years. A
comparison of the two sets are shown in Table 6.

TABLE 6 :   OBERS Population Projections and TSRPC's Planned Capacity Estimates
for the LIS Area

| | OBERS PROJECTIONS | | | | | Differences between OBERS Projections and Tri-State's Planned Capacity | |
	Actual 1970	1980	2000	2020	Population at Capacity[1]	2000	2020
			1000				
Connecticut Planning Region:							
Greater Bridgeport	311	348	398	448	416	-18	+32
South Central	508	567	647	722	822	-175	-100
South Western	334	370	429	483	514	-85	-31
Valley	74	92	129	144	139	-10	+5
New York Portion:							
Nassau	1,428	1,580	1,720	1,794	1,594	+126	+200
Suffolk	1,127	1,636	2,597	3,380	2,237	+360	+1,143
Westchester	894	995	1,106	1,188	1,506	-400	-318

[1] Regional Development Guide, Tri-State Regional Planning Commission, New York
City, October 1968, as supplemented September, 1972.

3.0 EMPLOYMENT AND INCOME OVERVIEW

3.1 Introduction

Information on employment, both in terms of absolute level and composition, is important to the understanding of economic interrelationships in the Long Island Sound Region. This chapter examines the past and present employment situation and provides projections of future employment. An analysis of some of the historic trends at work is presented for the four Connecticut Counties as well as for Nassau and Suffolk Counties.

Population levels are generally dependent on levels of regional economic activity. The Long Island Sound Region, including New York City, will experience future population growth only to the extent that the economy expands and employment opportunities are created. The availability of jobs and prevailing wage rates relative to other parts of the nation influences labor mobility into and out of the region, especially among younger workers. The dependence of population growth on the region's economy is the basis of the OBERS projections. This chapter describes the major facets of the economy -- employment, earnings, and industry mix -- that are prerequisites to projecting population change and ultimately estimating demands on the resource base.

One approach to gaining an appreciation of regional economic trends is to examine employment trends among and within industry sectors over time. Such an approach is somewhat incomplete and narrow in that many patterns are not explicitly stated and tested; structural interdependencies among sectors are ignored; and the role of interregional and national economic developments is ignored or at least obscured. Nevertheless, this approach does provide a revealing overview of the magnitude and composition of changes in the industrial structure of the region.

The growth or decline of jobs within these categories has a serious impact on the region's economy. In every area there are "basic" industries and a related group of "residentiary" industries. The basic group normally includes agriculture, mining, manufacturing, and armed forces. The residentiary group usually includes contract construction, transportation, communications, utilities, trade, finance, business and professional service, and civilian government activities. However, where one or more of these typically residentiary activities serve larger than regional markets, they are treated as basic activities.

Basic activities are those which play a central role in an area's development. In the production of its basic industries a region may have special economic advantages relative to other areas and thus, much of its basic industry output tends to be exported to other areas. Earnings from the sale of basic industry products return to the area in the form of goods and services produced more efficiently elsewhere or in the form of capital flows.

Residentiary industries tend to spring from basic industries; their origin may be viewed as a response to requirements for special service on the part of both basic industry firms (e.g. transportation and wholesaling) and workers in their role as consumers (e.g. recreation and retailing).

This method of looking at a regional economy is called economic base analysis. Although it does tend to oversimplify economic interrelationship and has some shortcomings it does point up important economic activities and associated capital flows within a region. Population and income growth follow employment opportunities, thus a change in employment is, according to economic base theory, the primary factor influencing regional economic growth.

3.2   Regional Employment Profile

Two concepts of employment can be used in presenting and analyzing data. Employment may be measured either at the place of residence or place of work. Place of work information as compiled by the U.S. Bureau of the Census indicates the "pull" of job concentrations within various segments of a metropolitan area, i.e., it describes where employment concentrations exist. It also describes the industrial structure of an area. However, place of work data fail to provide any idea where employees reside. Employment by place of residence provides an idea of the commuting patterns of workers and some indication of the interrelationship between employment growth and residential and transportation development.

For purposes of this discussion, employment data by place of work will be used. Such information is presented in Table 7. These data indicate an area wide increase in employment of approximately 54% between 1962 and 1972, with the largest relative increase occurring in New London County and the smallest relative increase in New Haven County. The largest percentage increase occurred in the transportation and utilities industry group followed by the retail trade group.

3.3   An Analysis of the Existing Economy

The Long Island Economy.   Nassau and Suffolk Counties constitute a unique example of a mature suburban labor market within the confines of a major metropolitan area. The two Counties have a sizable employment base and labor force.

Employment Trends.   Nassau-Suffolk is one suburban labor market which benefited from the relatively rapid growth of employment in the New York Region (S.C.A.) outside of New York City. Between 1960 and 1970, some 280,000 non-agricultural wage and salary jobs were generated in Nassau-Suffolk, including 93,000 in trade, 65,000 in government, and 61,200 in services. (See Table 8). Bi-county job growth was equivalent to 36% of all job growth within the New York Standard Consolidated Area outside of New York City.

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TABLE 7: Number of Employees by Place of Work and Change in Employment Levels, 1962-1972, by SIC Group, Long Island Sound Area

INDUSTRY GROUP (SIC)	1962	1972	% Change 1962-1972
Fairfield County			
Agriculture, Forestry Fisheries & Mining(01-14)	626	1,429	128.3
Contract Construction (15-17)	8,779	10,320	17.0
Manufacturing (19-39)	104,745	107,741	2.9
Transportation & Utilities (40-49)	6,155	11,222	82.3
Wholesale Trade (50)	7,512	14,647	95.0
Retail Trade (52-59)	22,238	46,715	110.1
Finance, Insurance, and Real Estate (60-67)	9,039	13,783	52.5
Services (70-89)	29,294	47,442	62.0
TOTAL	188,388	253,299	34.4
Middlesex County			
Agriculture, Forestry, Fisheries & Mining (01-14)	61	201	229.5
Contract Construction(15-17)	916	1,455	58.8
Manufacturing (19-39)	9,945	12,781	28.5
Transportation & Utilities (40-49)	554	1,251	127.6
Wholesale Trade	829	1,094	32.0
Retail Trade (52-59)	2,797	5,364	36.3
Finance, Insurance, and Real Estate (60-67)	526	1,146	117.9
Services (70-89)	2,307	6,338	174.7
TOTAL	17,935	29,640	65.3
New Haven County			
Agriculture,Forestry, Fisheries & Mining (01-14)	397	591	48.9
Contract Construction (15-17)	7,900	10,632	34.6
Manufacturing (19-39)	101,247	91,390	-9.7
Transportation & Utilities (40-49)	8,065	16,882	109.3
Wholesale Trade (50)	7,477	14,540	94.5
Retail Trade (52-59)	22,844	44,136	93.2
Finance, Insurance, and Real Estate (60-67)	8,908	12,707	42.7
Services (70-89)	32,378	55,803	72.4
TOTAL	189,216	246,681	30.4
New London County			
Agriculture, Forestry, Fisheries & Mining (01-14)	162	213	31.5
Contract Construction (15-17)	1,656	3,302	99.4
Manufacturing (19-39)	10,535	25,754	144.5
Transportation & Utilities (40-49)	2,026	3,189	57.4
Wholesale Trade (50)	1,358	2,660	95.9
Retail Trade 52-59)	6,238	11,635	86.5
Finance, Insurance, and Real Estate (60-67)	1,205	1,709	41.8
Services (70-89)	5,509	10,062	82.7
TOTAL	28,689	58,524	104.0

TABLE 7: Number of Employees by Place of Work and Change in Employment Levels,
1962-1972, by SIC Group, Long Island Sound Area (Cont'd)

INDUSTRY GROUP (SIC)	1962	1972	% Change 1962-1972
	Naasau County		
Agriculture, Forestry, Fisheries & Mining (01-14)	1,795	1,886	5.1
Contract Construction (15-17)	22,983	24,611	7.1
Manufacturing (19-39)	87,053	89,681	3.0
Transportation & Utilities (40-49)	5,609	23,339	316.1
Wholesale Trade (50)	27,823	32,869	18.1
Retail Trade (52-59)	33,552	96,832	188.6
Finance, Insurance, and Real Estate (60-67)	14,462	27,073	87.2
Services (70-89)	44,629	88,588	98.5
TOTAL	237,906	384,879	61.8
	Suffolk County		
Agriculture, Forestry, Fisheries & Mining (01-14)	996	1,469	47 5
Contract Construction (15-17)	7,567	11,720	54.9
Manufacturing (19-39)	35,406	49,262	39.1
Transportation & Utilities (40-49)	5,382	11,704	117.5
Wholesale Trade (50)	6,492	9,952	53.3
Retail Trade (52-59)	17,576	49,960	184.3
Finance, Insurance, and Real Estate (60-67)	5,251	10,653	102.9
Services (70-89)	17,384	38,124	119.3
TOTAL	96,054	182,844	90.4
	Westchester County		
Agriculture, Forestry, Fisheries & Mining (01-14)	0	942	--
Contract Construction (15-17)	12,806	16,055	25.4
Manufacturing (19-39)	50,616	53,679	25.8
Transportation & Utilities (40-49)	4,746	17,063	259.5
Wholesale Trade (50)	18,649	26,169	40.3
Retail Trade (52-59)	18,643	49,815	167.2
Finance, Insurance, and Real Estate (60-67)	11,290	14,753	30.7
Services (70-89)	37,053	61,668	66.4
TOTAL	153,803	250,144	62.6
	7 County Total		
Agriculture, Forestry, Fisheries & Mining (01-14)	4,037	6,731	66.7
Contract Construction (15-17)	62,607	78,095	24.7
Manufacturing (19-39)	399,547	440,288	10.2
Transportation & Utilities (40-49)	32,537	84,660	160.2
Wholesale Trade (50)	70,140	101,931	45.3
Retail Trade (52-59)	123,888	304,457	145.8
Finance, Insurance, and Real Estate (60-67)	50,681	81,824	61.5
Services (70-89)	168,554	308,025	82.8
TOTAL	911,991	1,406,011	54.2

SOURCE: County Business Patterns, 1962 and 1972

Nassau and Suffolk have traditionally functioned as bedroom suburbs for New York City job commuters. The above data indicate that employment growth in Nassau and Suffolk has provided many local jobs and has reduced if not ended their role as bedroom suburbs.

Manufacturing. Locational shifts in manufacturing are important to the economic "health" of an area because the manufacturing sector is a major source of blue-collar jobs.

Nassau-Suffolk enjoys a unique industry mix of employment in manufacturing. While the remainder of the region, particularly New York City, specializes in non-durables employment, the bi-county manufacturing base is heavily oriented toward durables employment. Durables industries are generally capital intensive, high productivity enterprises with a relatively high wage structure. They require a disproportionately large number of white-collar workers.

Labor Department figures suggest that Nassau-Suffolk gained some 29,000 manufacturing jobs between 1960 and 1970. Closer examination of the data reveals that two-thirds of the gain occurred in non-durables industries such as apparel and printing and publishing. It is significant that Nassau-Suffolk's leading manufacturing industries -- aircraft and parts and instruments -- which in 1960 accounted for 45% of total manufacturing employment failed to grow or actually declined between 1960 and 1970.

Trade. Employment gains in trade were larger than employment gains for any other major industry group in Nassau-Suffolk between 1960 and 1970. The growth of employment in wholesale trade reflects the dispersion of wholesalers who merely "store" goods in suburban counties and away from New York City where congestion and the high cost offacilities increases the cost of doing business. Changes in retail trade employment are closely correlated with the rate of growth and the level of purchasing power of the resident population. Nassau-Suffolk's relatively large and affluent population has acted as a magnet for retailers and particularly for general merchandise (department) stores.

Services. The service sector encompasses a diverse array of industries which provide both business and personal services. In Nassau-Suffolk the leading service industries in terms of employment were medical and health services, business and educational services. The rapid growth of medical and health services reflects growing health coverage and the increased importance of health care as incomes rise. The growth in business services reflects the expansion of the local economic base. The service sector has been and should continue to be one of the most dynamic sectors of the Long Island economy.

Office-Related Employment. This country is increasingly becoming a nation of white-collar workers. As a result of the gradual transition from primary and secondary to tertiary production, the proportion of white-collar workers in the nation's labor force increased from 40.8% to 45.6% between 1960 and 1970. The white-collar orientation of the New York Region is even more pronounced. White-collar occupations are associated with a variety of urban activities which occur in schools, hospitals, factories and

warehouses. However, the largest single contingent of white-collar workers, some 40% of the total, is housed in separate office buildings. Recently, there has been spillover of office activity into close-in suburban counties, such as Nassau. In part, offices have come to tap the bi-county supply of skilled white-collar labor. In part, the spillover of offices reflects the requirement that "local" market office activities locate closer to suburban population concentrations.

Regional Plan Association statistics indicate that the Nassau-Suffolk labor market accounted for disproportionately few regional office jobs in 1965. For example, the two counties contained an estimated 14.6% of the region's (S.C.A.) 1965 population but for only 5.1% of its office jobs. However, Nassau alone accounted for 18.7% of the region's suburban population and 15.1% of suburban office jobs, reflecting the advantages of close-in Nassau for certain types of office activity.

Labor Force. The size of the Nassau-Suffolk resident labor force increased from 715,394 persons in 1960 to 999,890 persons in 1970, a gain of 39.8%. The rate of labor force growth exceeded that of population growth in both counties primarily because of an increase in the level of female labor force participation. Female labor force entrants, 141,644, accounted for half the growth of the bi-county labor force (284,496) between 1960 and 1970.

Occupations. 1970 census information indicates that the bi-county resident labor force contains a large number of white-collar and skilled blue-collar workers. In 1970, 577,674 bi-county residents, 60.3% of the total resident labor force, were employed in one of four white-collar occupations: professional and technical, managerial, clerical and/or sales. An additional 231,748 persons were employed as craftsmen, foremen and operators, the leading blue-collar occupations. Between 1960 and 1970, the bi-county resident labor force experienced a net increase of 179,441 white-collar workers. This was equivalent to 65% of the net growth of all occupations in Nassau-Suffolk during the 1960's.

Industry of Employment. In 1970, approximately three-quarters of all bi-county residents were employed in one of three major industry groups: services (276,200), wholesale and retail trade (209,156) and manufacturing (198,838). Between 1960 and 1970, the service industries demonstrated the greatest gains in terms of the number of bi-county residents employed. The increase in service employment, 118,049, accounted for 42% of the growth of employment in all industries during the 1960's.

Income Levels. In calendar year 1969, the year to which 1970 census income statistics relate, the incomes of Nassau-Suffolk residents were among the highest in New York State. The 1969 median income of families in Nassau County was $14,632. Average (mean) family income was $17,632. Nassau's median income was the highest of any county in New York State. Its mean income was second only to that of Westchester County. The median income

of Nassau County families increased from $8,515 in 1959 to $14,632 in 1969, a gain of 71.8%. The median income of families in Suffolk County was $12,084 in 1969; the mean was $13,382. Median family income increased from $6,795 in 1959 to $12,084 in 1969, a gain of 77.8%.

TABLE 8: Number of Non-Agricultural Wage and Salary Jobs, Nassau-Suffolk (SMSA), 1960, 1970

| Industry | Number of Jobs | | Change 1960-70 | |
| | 1960 | 1970 | Absolute | Percent |
	(1000)			
Construction	34.9	37.2	+2.3	+6.5
Manufacturing	124.1	154.4	+30.3	+24.4
Transportation Communications, Utilities	21.6	33.5	+11.9	+55.1
Trade	99.6	193.0	+93.4	+93.8
Finance, Insurance Real Estate	17.4	33.1	+15.7	+90.2
Services	72.0	133.2	+61.2	+85.0
Government	78.8	143.8	+65.0	+82.5
Total	448.5	728.3	+279.8	+62.4

Source: U.S. Bureau of Labor Statistics

     The Southern Connecticut Economy. The Connecticut portion of the Long Island Sound Region consists of six regional planning areas: Southwestern, Greater Bridgeport, Valley, South Central Connecticut, Connecticut River Estuary and Southeastern Connecticut. For consistency and due to more readily available data, the following pages will analyze changes on a county basis. Fairfield, New Haven, Middlesex and New London's employment base and labor force and construction will be analyzed in this report for the period 1960-1970.

     Generally the economy of the region ranges from Fairfield County which is closely tied to New York City to Middlesex County which is for the most part a fairly sparsely settled area with a few industrial firms. New Haven county is rather densely populated with a large diversified industrial base. On the other hand, New London County economy is heavily dependent on a single large firm.

Employment Trends. In the four counties of Connecticut adjacent
to Long Island Sound total employment increased by 172,100 from 593,800 in
1960 to 765,900 in 1970. The largest numerical increase during the 10 year
period was 53,700 jobs in the service industry up from 104,900 to 158,600.
The next largest gain in jobs was 35,700 in Retail Trade followed by 27,100 in
government. Manufacturing generated 17,300 new jobs and provided approximately
35% of all jobs in the region in 1970 compared with 42% a decade earlier. A
slight drop occurred in agriculture, forestry and mining from 8800 to 8600.

The region's total employment grew at a faster rate than the population
with a gain 29% from 1960 to 1970. Population in the region increased 18.6%
from, 1,588,500 to 1,883,400. By industry, the largest percentage gain was in
government, including public schools. Next largest relative gain was wholesale
trade, followed by service, the second largest industry in the region. Manu-
facturing, the largest industry, had a relatively small increase (Table 9).

TABLE 9: Employment by Major Industry for Fairfield, Middlesex, New Haven
and New London Counties, 1960 to 1970.

| Industry | Number of Jobs | | Change 1960-70 | |
| | 1960 | 1970 | Actual | Percent |
		(1000)	(1000)	
Agriculture, Forestry & Mining	8.8	8.6	-0.2	-2.3
Construction	35.3	43.1	+7.8	+22.1
Manufacturing	251.1	268.4	+17.3	+6.9
Transportation	16.6	18.3	+1.7	+10.2
Communication & utilities	16.5	23.1	+6.6	+40.0
Wholesale Trade	17.2	28.6	+11.4	+66.3
Retail trade	80.1	115.8	+35.7	+44.6
Finance, Insurance & Real Estate	23.4	34.4	+11.0	+47.0
Service	104.9	158.6	+53.7	+51.2
Government	39.9	67.0	+27.1	+67.9
Total	593.8	765.9	+172.1	+29.0

Source: U.S. Bureau of Labor Statistics

Manufacturing Employment. The industry mix of the four counties
along Long Island is largely centered in durable goods which comprise 72% of
all manufacturing industries employment. The largest industries are primary
and fabricated metals, machinery and transportation equipment. The New London
region's economy is largely dependent on a single large firm, Electric Boat
Division of General Dynamics. This firm manufactures and re-builds atomic
submarines and employs a workforce of over 10,000. The other three counties
have a more diversified industry mix, but the predominant products are metallic
producers goods which are largely for export out-of-state.

From 1960 to 1970 employment in durable goods increased from 172,100 to 192,400. This is an increase of 11.8%. The largest percentage increase was in the furniture and wood industry, up 29.2% during the decade, followed by Transportation Equipment up 24.9%. The largest numerical increase was in transportation equipment +8,100, machinery, including electrical +7,100 and primary and fabricated metals +3,600.

In contrast to an increase in durable goods employment, jobs in non-durable goods decreased slightly from 79,000 in 1960 to 76,000 in 1970. Decreases of 8.1% were noted in textiles and apparel, and 19.1% in other nondurable goods. Increases occurred in food products, printing and publishing and chemicals. The largest numerical increase was in chemicals up 1,800 during the decade and the biggest numerical decrease was -5,500 among the other nondurable goods.

Construction. The construction sector increased substantially during the period 1960 to 1970. Gains were noted in the commercial, industrial, and residential building. An added impetus to the construction boom during the 1960's was provided by a significant number of large corporate headquarters that moved from New York City and relocated in Fairfield County.

Large scale residential building was reflected by the fact that the number of dwelling units in the four counties along the Sound increased by 93,294 from 1960 to 1970. In 1970 dwelling units totaled 609,552. The largest during the decade was in Fairfield with an increase of 45,621 units or 21.8%. Second largest numerical increase was in New Haven County with 30,116 additional units, up 14.2%.

3.4 Family Income Data

The Long Island Sound Region is a relatively wealthy area, due in part to the concentration of employment opportunities in the region. Between 1959 and 1970, the total personal income of the region increased around 90 percent, from $11.5 billion to $22.5 billion as measured in constant dollars. Per capita income rose forty percent during the same period, from 3,290 to $4,632. The average family income in 1969 for the seven county region was nearly $14,000 and nearly 50% of the families had incomes in excess of $15,000. Nassau County had the largest average income, $15,500, followed by Westchester County, $15,000, and Fairfield County, $14,500. Other county average incomes for 1969 were Suffolk, $12,600, New Haven, $11,600, Middlesex, $11,500, and New London, $10,500.

The distribution of family income varies considerably among counties, as reflected in Figure 3.

Figure 3: Percent of Families by Income Class, 1959 and 1969, Long Island Sound Area.
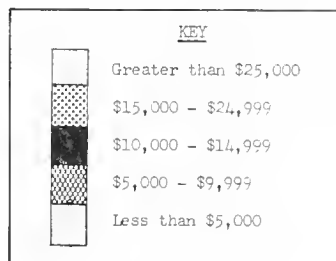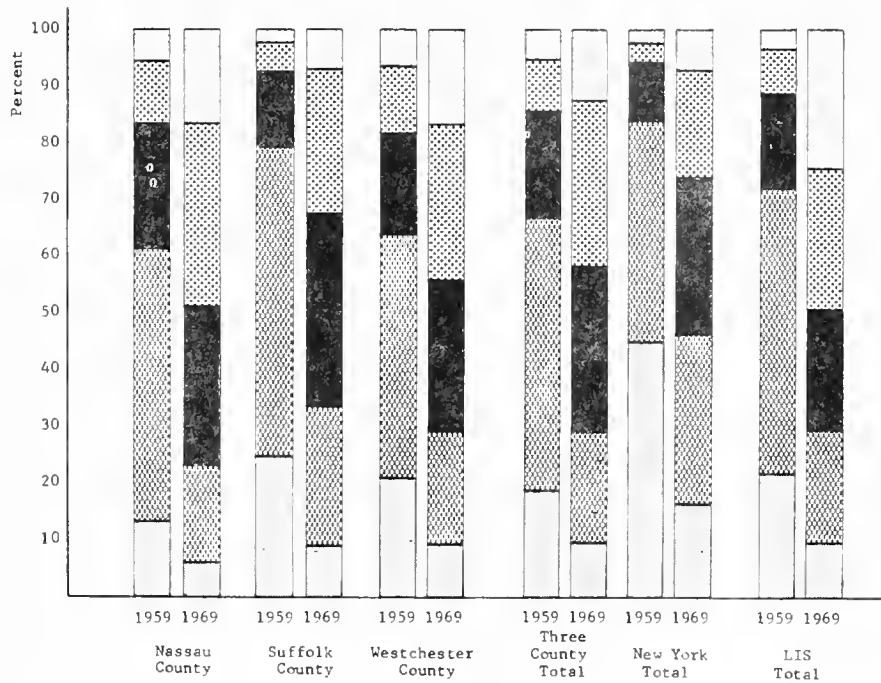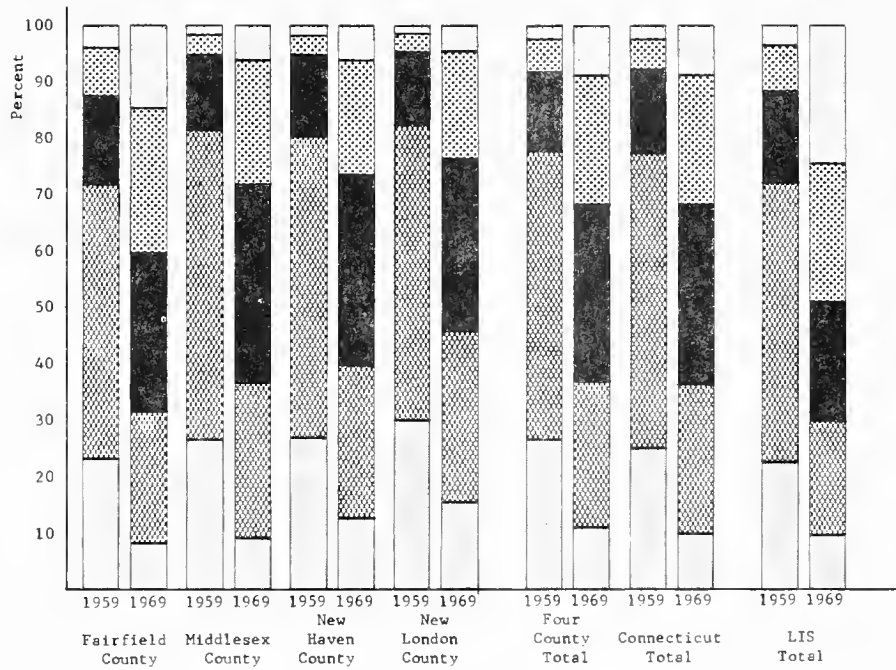
4.0   EMPLOYMENT AND EARNINGS PROJECTIONS

4.1   Introduction

The benchmark county projections of employment and earnings presented in Appendix B has its source in a program of economic measurement, analysis and projections conducted by the Bureau of Economic Analysis (BEA) -- formerly the Office of Business Economics (OBE) -- of the U.S. Department of Commerce and the Economic Research Service (ERS) of the U.S. Department of Agriculture. The OBERS program, as it has come to be called, seeks to provide a regional economic information system in which historical and projected data form a national economic framework wherein a region's present and future levels of economic development can be assessed and compared with those of other regions.

The OBERS program provides historical and projected data for economic areas, States, river basins and water resources subareas (WRSA). The area of immediate concern in this study -- Long Island Sound (LIS) forms a small portion of two of these subareas, (WRSA 107 & 203).

4.2   Analysis of OBERS Projections with Implications

The benchmark projections provided in tables in Appendix B have been indexed using 1970 as the base year. Indices of changes in employment and income are highlighted below and presented in tables 10 through 13.

Employment

Employment opportunities in the Long Island Sound Region are expected to increase during the 1970's although at a rate slower than in the nation. Total employment is projected to increase 65% between 1970 and 2000. Increases in future decades will be at a lesser rate than the present decade, reflecting, in part, a general equilibrium in female labor force participation rates at a significantly higher level than that of the 1960's. With a low birth rate, a larger proportion of the total population will be of working age relative to that which existed in years past. For example, the working aged population is expected to increase from about 62-63 percent of the total population for 1960 and 1970 to more than 68 percent by the year 2000 and about 70 percent by 2010 before dropping slightly as more people retire.

Total employment is projected to grow at about one percent annually from 1970 to 2020 for the overall region with the Connecticut segment growing about 43.6 percent faster than the New York portion of the region. Suffolk and Middlesex Counties are the areas most likely to have the largest increase in employment, in the absence of policies to the contrary, with a 160 percent and 83 percent increase respectively between 1970 and 2000.

Regionwide employment, although growing, will decline as a share of national employment, similar to changes in the regions population growth. In 1960, the region's employment comprised 7.6 percent of U.S. total employment, but the projection shows a 6.5 percent share in the year 2000.

TABLE 10:   Index of OBERS Employment Trends in LIS Area, Selected Years 1970 - 2020

	1950	1960	1980	1990	2000	2020
	- - - - - - - - Index -- 1970 = 100 -					
Total LISS Area [1]/	53.1	77.9	128.6	146.7	165.4	187.3
Fairfield	62.8	79.5	123.1	136.7	151.6	168.1
Middlesex	54.9	73.5	131.7	158.2	183.6	217.0
New Haven	72.0	84.6	123.0	135.9	150.2	164.5
New London	60.7	77.1	122.7	138.3	152.6	169.3
Total Connecticut	65.7	80.9	123.3	137.5	152.9	169.6
Nassau	45.5	82.8	120.2	127.9	135.5	138.7
Rockland	36.5	55.3	157.0	246.2	299.0	369.6
Suffolk	23.9	55.4	158.6	208.7	259.9	332.8
Westchester	68.7	87.8	121.7	130.2	139.7	147.8
New York City	102.2	103.2	111.3	114.1	119.7	121.8
Total New York [2]/	84.6	94.5	118.1	127.5	138.4	148.4
Total New York [2]/	45.7	76.2	131.7	152.1	172.7	197.7
Total Area [2]/	81.9	92.5	118.8	128.9	140.5	151.4

1/ New London, New Haven, Middlesex, Fairfield, Westchester, Nassau & Suffolk Counties

2/ Includes Rockland County and New York City

TABLE 11:   Index of OBERS Personal Income Trends in LIS Area, Selected Years 1970-2020

	1950	1959	1980	1990	2000	2020
	- - - - - - - - Index -- 1970 = 100 - - - - - - - - - - - - - - - - - - -					
Total LISS Area [1]/	32.3	58.8	158.3	227.7	327.6	609.3
Fairfield	37.4	57.0	149.8	211.5	302.0	551.1
Middlesex	34.3	53.2	165.1	251.6	376.5	733.4
New Haven	46.0	64.4	149.6	206.9	293.2	529.6
New London	40.3	63.3	146.0	200.4	286.1	549.1
Total Conn.	40.8	60.3	150.2	210.9	301.3	553.3
Nassau	28.2	62.8	152.1	207.8	282.0	476.9
Rockland	24.5	43.7	183.0	353.1	549.2	1171.8
Suffolk	16.7	46.2	189.5	309.9	496.3	1083.7
Westchester	36.3	60.4	155.9	219.1	303.0	515.6
New York City	59.6	68.0	141.1	186.0	251.1	420.5
Total New York [2]/	50.3	64.9	147.5	202.1	279.9	490.7
Total New York [2]/	27.8	58.0	162.5	236.5	341.4	638.7
Total Area [2]/	49.3	64.4	147.8	203.2	282.6	498.4

1/ New London, New Haven, Middlesex, Fairfield, Westchester, Nassau & Suffolk Counties

2/ Includes Rockland County and New York City.

TABLE 12: Index of OBERS Per Capita Income Trends in LIS Area, Selected Years, 1970 - 2020.

	1950	1959	1980	1990	2000	2020
	- - - - - - - - - Index -- 1970 = 100 - - - - - - - - - - - - - -					
Total LISS Area 1/						
Fairfield	58.6	69.7	133.1	169.7	224.6	364.0
Middlesex	58.5	69.1	136.0	175.7	232.6	377.0
New Haven	62.6	73.2	133.1	166.5	220.4	357.1
New London	64.0	79.3	130.0	159.8	211.6	359.8
Total Conn.	60.8	72.0	132.9	167.7	222.1	361.7
Nassau	59.7	69.5	137.7	177.2	234.6	380.2
Rockland	63.1	73.9	126.5	156.0	206.5	350.1
Suffolk	68.0	78.7	130.7	162.8	215.6	361.7
Westchester	51.8	67.3	140.4	185.2	245.2	388.6
New York City	59.5	69.5	137.9	177.8	235.4	381.5
Total New York 2/	61.1	70.8	135.3	171.3	224.3	358.9
Total Area 2/	61.3	71.0	135.0	170.7	223.7	358.6

1/ New London, New Haven, Middlesex, Fairfield, Westchester, Nassau and Suffolk Counties

2/ Includes Rockland County and New York City.

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	1980	1990	2000	2020
	- - - 1970 = 100 - - - - - - - -			
Fairfield County				
Total Earnings	147.7	206.8	288.8	506.5
Agriculture, Forestry, Fisheries	116.3	131.8	147.3	186.1
Mining	124.5	124.5	249.1	249.1
Contract Construction	145.0	202.3	279.6	479.6
Manufacturing	138.3	182.3	240.1	382.1
Transportation, Communications, Utilities	141.0	193.2	263.7	444.1
Wholesale & Retail Trade	135.1	179.0	240.9	397.0
Finance, Insurance, Real Estate	175.2	256.3	370.0	677.5
Services	169.7	261.7	394.3	771.5
Government	158.7	239.1	354.5	680.0
Middlesex County				
Total Earnings	153.0 1/	229.2	340.2	657.9
Agriculture, Forestry, Fisheries	91.7 1/	114.7	114.7	137.6
Mining	91.7 1/	91.7	91.7	91.7
Contract Construction	248.8	360.1	523.8	988.7
Manufacturing	117.2	162.1	222.5	387.6
Transportation, Communications, Utilities	203.2	318.0	485.9	989.4
Wholesale & Retail Trade	170.3	250.1	364.5	697.1
Finance, Insurance, Real Estate	164.4	258.4	387.6	751.6
Services	189.7	319.2	511.1	1096.3
Government	169.6	270.5	418.6	852.2
New Haven County				
Total Earnings	151.5	214.2	303.5	551.5
Agriculture, Forestry, Fisheries	103.7	103.7	112.3	146.9
Mining	130.5	156.6	208.8	287.1
Contract Construction	129.6	173.7	232.9	379.8
Manufacturing	142.2	184.1	239.6	379.0
Transportation, Communications, Utilities	157.3	228.8	332.6	629.1
Wholesale & Retail Trade	134.8	176.7	235.7	381.0
Finance, Insurance, Real Estate	167.5	244.9	354.1	647.8
Services	185.3	298.9	469.4	982.5
Government	159.7	243.3	364.2	720.7
New London County				
Total Earnings	141.9 1/	202.3	288.8	538.0
Agriculture, Forestry, Fisheries	97.7 1/	97.7	107.4	146.5
Mining	--- 1/	---	---	---
Contract Construction	157.6	216.3	293.5	488.1
Manufacturing	123.8	161.6	211.6	340.9
Transportation, Communications, Utilities	153.4	220.8	318.1	595.1
Wholesale & Retail Trade	147.7	201.5	279.1	479.3
Finance, Insurance, Real Estate	217.5	326.3	485.3	937.1
Services	191.2	316.9	510.9	1124.1
Government	135.7	202.3	297.2	586.0

	1980	1990	2000	2020
	- - - - - 1970 = 100 - - - - - -			

Nassau County

	1980	1990	2000	2020
Total Earnings	146.9 1/	200.2	273.4	461.8
Agriculture, Forestry, Fisheries	135.2 1/	151.4	167.6	216.3
Mining	100.0 1/	100.0	100.0	100.0
Contract Construction	143.8	189.8	250.2	395.4
Manufacturing	134.8	168.7	212.4	318.1
Transportation, Communications, Utilities	134.3	176.1	231.0	365.8
Wholesale & Retail Trade	129.4	161.0	205.1	307.7
Finance, Insurance, Real Estate	147.8	202.0	274.5	452.2
Services	172.2	255.8	373.2	690.7
Government	151.7	219.2	313.2	563.8

Suffolk County

	1980	1990	2000	2020
Total Earnings	140.5	191.0	260.2	438.3
Agriculture, Forestry, Fisheries	133.6	145.8	166.0	218.7
Mining	207.6	207.6	276.8	415.2
Contract Construction	136.8	180.4	237.6	375.7
Manufacturing	123.6	154.8	194.9	292.0
Transportation, Communications, Utilities	130.2	170.9	225.6	361.7
Wholesale & Retail Trade	123.5	153.7	195.9	293.8
Finance, Insurance, Real Estate	142.5	195.9	265.8	437.5
Services	164.4	243.6	355.3	656.6
Government	155.5	224.4	320.2	575.4

Westchester County

	1980	1990	2000	2020
Total Earnings	145.4 1/	198.4	271.1	459.5
Agriculture, Forestry, Fisheries	120.7 1/	133.4	152.5	196.9
Mining	100.0 1/	200.0	200.0	300.0
Contract Construction	137.0	180.8	328.0	376.8
Manufacturing	127.9	161.3	204.9	313.7
Transportation, Communications, Utilities	135.3	176.9	233.0	371.8
Wholesale & Retail Trade	130.8	162.8	207.3	311.2
Finance, Insurance, Real Estate	150.7	206.2	280.6	462.6
Services	172.7	256.5	374.2	692.3
Government	151.6	218.8	312.2	561.8

LISS Total

	1980	1990	2000	2020
Total Earnings	146.5	202.6	280.4	486.6
Agriculture, Forestry, Fisheries	240.0	262.4	294.9	378.3
Mining	197.4	230.3	296.1	411.2
Contract Construction	140.9	189.0	252.5	410.3
Manufacturing	133.7	171.7	221.5	345.1
Transportation, Communications, Utilities	141.1	191.9	262.0	446.3
Wholesale & Retail Trade	131.6	167.7	218.5	341.1
Finance, Insurance, Real Estate	156.1	219.1	305.4	525.5
Services	173.3	263.0	391.4	750.6
Government	153.2	224.7	325.6	603.7

1/ Adjustment made to Agriculture, Forest, Fisheries and Mining because of disclosure problem.

Source: OBERS projections, in 1967 dollars

Personal Earnings and Income

Personal income, which provides a comprehensive measure of economic well being in the region, is projected to exceed $300 billion (in constant 1967 dollars) by 2020 -- a four fold increase compared to 1970.[1] Even though the New York portion has the lion's share of income, the Connecticut half of the region is projected to have a slightly larger share of the increase.

Per capita income is a rough measure of the purchasing power of an area, although it provides no indication of the distribution of that income throughout the population.

Income is projected to increase from $4,632 per person in 1970 to $16,610 by the year 2020 expressed in real 1967 dollars. Compared to the nation, however, the region's per capita income is projected to be 26 percent above the U.S. average in 2020 compared to 33 percent higher in 1970. The higher per capita income relative to the U.S. is because of generally higher wage rates and greater property and proprietors income per capita compared to other regions of the nation. Regional differences are projected to diminish, as has been evident in historical trends. Greatest increases in income are projected for Suffolk and Middlesex counties, concurrent with high employment levels.

Per worker earnings of $27,000 in 2020 compared to less than $9,000 in 1970 contribute to increased regional income levels.

With per capita incomes increasing, the average household may have more money available for personal consumption expenditures. Certain household budget items, such as food, clothing and gross rent, generally classified as basic necessities, command relatively fixed amounts of income each year. However, certain luxury items or "superior goods" [2] such as: vacation homes, automobiles, household furnishings, air-conditioners and recreation related

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[1] The income concept used here is based on the National Income Accounts of the United States as developed and published by the Bureau of Economic Analysis - U.S. Department of Commerce. It differs significantly from family income as reported by individuals for the U.S. Census of Population because of (1) reporting errors on census questionnaires due to misunderstanding or forgetfulness and (2) differences in definition and components of income. The biggest components of definition differences for the Long Island Sound Region is probably the value of services of banks and other financial institutions and imputed property income accruing to nonfarm residents of owner occupied homes. For a more detailed description of BEA's personal income series see 1974 OBERS Projections - Regional Economic Activity in the United States, Series E Population, U.S. Government Printing Office (forthcoming).

[2] As income increases, expenditures on such items increase at a faster rate (i.e., their income elasticities of demand are greater than 1.0).

expenditure items are expected to claim proportionally larger shares of the household budget as the projection period lengthens. As spending habits change with an increase in "real" purchasing power and with a shift in the age composition of the Region's population (the median age of the population is expected to increase), households will also spend more on selected services (i.e., medical care, personal care, education and leisure activities). Expenditures on the luxury items will put increased pressure upon the resource base, especially those which require additional generation of electricity and those which involve the consumer in travel and water oriented activities such as boating and swimming.

Industry Mix

Growth of economic activity and related population is dependent on the types of industries located in the study region. Areas with a relatively large share of growth industries will likely experience faster overall growth compared to areas dominated by slow growing or declining industries. The region's industry mix may also have implications on the resource base because of unequal land, water and energy use rates.

Manufacturing has been the dominant industry in the Long Island Sound Region in the past, largely because of apparel, printing and publishing, and other manufacturing. The trade sector (including both wholesale and retail activities) and the services sector (mainly professional services and business and repair services) rank just behind manufacturing. The baseline projections show a continued growth of manufacturing industries, although at a rate far less than services, government, and finance, insurance and real estate. Part of this trend is due to the apparel and other fabric products industries, so important in years past, but of declining significance for the future.

The projections show that the diminished importance of manufacturing in the Long Island Sound Region parallels the lack of a positive regional specialization index in recent years. From a resource standpoint the modest pace of future manufacturing growth means that less water, land and energy resources are likely to be needed in the region compared to what would be required if manufacturing were a more dominant part of the economy.

Industries that primarily use office space (like professional ser- vices, government, and finance industries) are likely to experience the most rapid growth in the years ahead. Not only will these sectors grow rapidly, but they will also dominate the entire region's economy. Services, for example, will account for 28.1 percent of total earnings in the region by the year 2000. In 1970, the services share was 20.6 percent. Nationally, services will account for 21.7 percent of total earnings by the year 2000. It is clear, that service establishments, especially professional services, will find the Long Island Sound Region as a desirable location.

Although New York City has been the major focal point for many service establishments, increasingly other counties will experience growth of the businesslike engineering and architectural firms, doctors and hospitals, libraries, schools, legal practices and trade associations.

The finance, insurance, and real estate industry, centered in New York City, is projected to grow at more than 6 percent annually for the next three decades. Related businesses like communications, transportation, printing and publishing, and business services, are likely to feel some growth pressures in response to expansion of the region's financial sector.

TABLE 14. Service Industry Earnings as Percent of all Industry Earnings Long Island Sound Region and the United States 1970 and 2000

| | 1970 | | | 2000 | |
	LIS Region	US		LIS Region	US
Services	20.6	15.1		28.1	21.7
Other Industries	79.4	84.9		71.9	78.3
Total	100.0	100.0		100.0	100.0

In the long term future, the industrial mix tends to emphasize the kinds of establishments that employ white collar workers, including many in the upper middle and higher income classes. Demands upon the sound for recreational purposes, including power boating, can be anticipated to rise in reasonable proportion to the growth of these well paying industries.

The highly diversified nature of the Long Island Regional economy suggests an important implication for resource planning. The diversified industrial structure provides a certain degree of resiliency to economic conditions that may be industry specific. This characteristic enables consideration of resource management alternatives, such as waste discharge regulations, that could precipitate a mini-recession in other regions. For example, if a plant would have to close down for a month or two to install waste treatment facilities, the Long Island Sound Region would not experience the same economic hardship as would a region totally dependent upon a single plant for employment.

5.0 GUIDELINES FOR USING PROJECTIONS

Having presented the basic economic and demographic data, together with a brief analysis of their implications, we now turn to guidelines for using the projections in the plan formulation process. Some fundamental concepts are presented to assist planners and other study participants in the constructive application of economic and demographic information to resource problems in the Sound region.

5.1 Baseline Concepts

The estimates of future economic activity in this report are labeled baseline projections with the term "baseline" denoting a frame of reference for use in the planning or evaluation of an action or operation. These baseline projections are a best estimate of what can be expected to materialize if there are no policy or program changes of an unusual and unforeseen nature or magnitude in the factors which determined past trends. Of course, certain of the factors have been changing over time and will continue to do so in the future. The projections are in no sense a goal, an assigned share, or a constraint on a region's economic activity. Nor do they carry any connotation as to desirability or undesirability. Especially, they should not constrain the planner in considering alternative levels of growth which can be achieved through program planning.

The baseline projections serve at least three uses. First, a primary use of the OBERS projections is in the calculation of future demands for water and related land resources and services. Such a calculation may range from (1) a simple approximation of "requirements" -- based on the application of current or projected water use coefficients to the projected level of economic or demographic activity -- to (2) a determination of economic demand schedules for water based on an analysis of the influence of changing management technology, and shifting values in various uses. In this use the planner may wish to vary the projections to test the sensitivity of plans to different levels of economic activity and to introduce flexibility in the plan in order to accomodate the uncertainty of future conditions.

Second, analysis of the baseline projections may reveal future economic problems in the area requiring corrective action.

Third, the OBERS baseline projections provide a benchmark framework for evaluation purposes. Alternative resource use policies or programs may be predicated upon alternative projected population levels. Comparison of alternative projections with the baseline projections will provide a quantitative measure of the gross effects of the program in each region affected.

Economic evaluation in water resources planning requires a computation of the differences between an economy which includes the effects of resources development (the "with" condition) and one which excludes the effects of such a development (the "without" condition). A "with" and "without" comparison, it should be noted, differs significantly from a "before" and

"after" comparison. In the former case, all differences between the two situations are attributable to the plan or project under evaluation. In a "before" and "after" comparison, the difference reflects the impact of the plan or project plus all changes which may have occurred with the passage of time but not related to the project. Thus a "before" and "after" comparison may substantially overstate or understate the effects of the plan.

Since the baseline projections constitute an initial reference framework, it is necessary to ascertain the extent to which the baseline projections represent the "with" or "without" condition. To the extent that additional water resource development or management is required if the baseline projections are to materialize, they represent a "with" condition. To the extent that the projections may be attained without additional development or management they represent a "without" condition.

It is not possible to generalize as to the level of water and related land resources development anad management that is implied in the baseline projections as they are a function of past economic trends which reflect varying degrees of water resources development and management. Consequently, projections of both the available quantity of and the demand for water and related land resources are required in determining whether the projections are on a "with" or "without" condition. In the following discussion of how to determine whether a specific projection represents a "with" or "without" condition, "management" may be substituted for "development."

First, a determination is made of the supply of water and related land resources that will be available at specified future dates with no further development of such resources. Next, the amount of these resources required by the baseline projections is estimated. Finally, the projected supply and demand of water and related land resources are compared.

To the extent that requirements for land and water resources implied in the baseline projections exceed projected available supplies in the absence of future development, the baseline projections represent a "with" condition. For example, if the projected water supply is insufficient to support the projected level of economic activity, water resource development must occur if the baseline projections are to be attained. On the other hand, if projected water supplies in the absence of future development equal or exceed projected requirements, the baseline projections represent a "without" condition inasmuch as the envisioned economy can be sustained by the level of water supply expected to prevail even if no further development takes place.

If the baseline projections are determined to reflect a "with" condition, an analysis can be made to determine if reductions in projected economic growth might be necessary to bring economic activity and water supply into balance without additional resource development. The adjusted (reduced) projections of economic activity would then represent the projected economy assuming no future water development, or the "without" condition. Comparison of the

OBERS baseline projections (the "with" condition in this example) or the projections adjusted to match the supply of available water and related land (the "without" condition) would yield a quantitative measure of the gross beneficial effects within a region or subarea to be realized by developing water and land resources so as to eliminate the indicated deficiency in available water supplies. Viewed from another aspect, the difference between the baseline projections and the projections after adjustment to match water supplies represents a measure of gross economic cost to the area of failure to provide for the indicated water and land supplies. If the analysis is carried through to all affected areas, the net increase in national income is ascertained by a summation of all regional effects.

In the "without" case, where the projected supplies of water equal or exceed the requirements of the OBERS baseline projections, two alternative courses of action are open to the analyst. If analysis of the baseline projections reveal an economy that meets the goals and objectives of the people of the area in question, further water resources development would not be necessary and may not be desirable. This situation might well materialize in an area where further economic growth could be attained only with serious environmental damage which residents of the area might not accept.

On the other hand, the baseline projections are neither allotted shares nor goals, and they may not reflect optimum production location solutions. Therefore, even though the initial analysis shows that the projected supplies of water and related land are adequate to sustain the baseline projections, the planner may wish to consider increasing regional production, under competitive conditions, by further development of water and related land resources. This situation calls for analysis of how additional water and land resources would be used. Such analysis would include an evaluation of the full effects of the water resources development of the economy of all areas affected. Comparison of the baseline projected economies (without additional water resources development) would yield quantitative measures, both regional and national, of the benefits to be derived from such development.

In carrying out the preceding analyses, the translation of the projections into the demand for water and related land resources and the analysis of the supply-demand situation can be performed with various degrees of rigor. The simplest procedure is to develop crude coefficients which relate water and related land use to economic activity. Application of these coefficients to the projected volume of economic activity will yield projected amounts of water and related land resources required.

At the other extreme, this analysis could be governed by the total supply of water and related land in the area and by the following elements of a water use projection: (1) an industry-by-industry assessment of available emerging and potential water use technologies; (2) an associated appraisal of the potentials for substituting other factor inputs for water in the production process; (3) appraisals of the incremental values of water by major use

categories, based mainly on the results of the analysis made in points (1) and (2) above; (4) an evaluation of the physical and institutional impediments to beneficial shifts in water use; and (5) the application of the foregoing factors to the economic production specified in the baseline projections to determine total projected water requirements under baseline conditions. The degree of rigor applied in any particular analysis will depend on the complexity of the problems, the possible alternative ways of solving the problems and the magnitude of the possible investments.

5.2 Alternative Approaches and Relevancy for Resource Planning

The trend based projections used in this study are intended to provide the necessary basis for estimating natural resource demands in the LIS area. Other projection techniques would yield different projections of economic activity and population, and hence, different estimates of resource demands. This section is intended to contrast the potential sensitivity of the resource demands to alternative projection approaches.

If local governments in the study region were to adopt specific measures to slow future population growth, a trend approach for projections would not be as realistic as some other possible approaches because such a situation would represent a specific policy that departs from past trends. Planners, however, cannot confidently assume such "slow growth" policies until they are articulated by the responsible body of elected officials. Nor can planners rely on assumptions of extremely rapid growth unless a proper analysis suggests that rapid growth is highly likely. For purposes of the Long Island study, if either slow growth or rapid growth had been assumed, demands on the resource base would be significantly lower or higher.

The OBERS projections do not assume resource limitations except to the extent that these limitations are already reflected in historical data. Fresh water, supplies, for example, are assumed to be adequate for future growth in the Long Island Sound Region.

Historical growth does not appear to have been limited by water deficits, primarily because other water sources have been tapped and underground aquifers have been "mined" rather than managed for sustained yield. If local officials on Long Island, for example, adopted and rigidly enforced a policy of restricting water withdrawals to the natural rechange of aquifers, new growth in that area would halt and methods of reducing water demand would soon be implemented.

Without a direct impact analysis of potential policies, we cannot quantitatively determine the outcome from specific resource management actions. Nor have we attempted to impute these ramifications through altering the economic and demographic projections to test the resource implications.

The projections could have significantly different implications on resource demands if pricing of goods and services ere explicitly considered in the overall study. Single valued projections can yield significantly different estimates of resource demand, depending on the pricing assumptions

that are incorporated into the various coefficients translating the projections into estimates of resource demands. For a given level of population, water use differs significantly depending on its price. Lawn sprinkling, for example,[1] constitutes about 50 percent or more of total annual residential water use. Studies have demonstrated that higher water prices significantly reduce water used for lawn sprinkling -- and to some extent reduce water losses from leakage. Even though higher water prices would encourage conservation of water supplies, the growth process itself is unlikely to be materially affected by pricing. Water costs are not among the most significant factors influencing the locations decisions of households.

6.0 IMPLICATIONS FOR PLANNING

The information presented in this report suggests certain implications in planning for orderly resource development in the Long Island Sound region. The implications identified here represent the collective judgment of the work group based on our understanding of the issues and problems in the region in light of the economic and demographic forces involved. They do not necessarily represent the official views of the Long Island Sound Regional Study, the New England River Basin Commission, or any of the Federal, State, or local agencies involved in the study. The views are expressed in efforts to assist the plan formulation process and to encourage constructive dialogue in the region. The implications include:

1. The growth projections included in this report reflect the growth forces in the region and the nation. However, they represent a certain momentum that will respond only to alternative policy decisions. Growth will neither halt abruptly or accelerate sharply unless these underlying growth forces are modified by national programs and policies or by state and local governmental actions. Even deliberate actions to modify growth will require a certain lead time before the response could be noticed.

2. Future levels of population and economic activity in the Long Island Sound Region will be interrelated to the overall growth pattern of the Atlantic Seaboard Metropolitan Belt. Not only will employment opportunities and income levels depend to some extent on this larger metropolitan belt but higher levels of demand on the resource base can also be anticipated because of the close proximity and economic interdependencies. Planners must take into account the demand upon the resources of the region from people living both in and out of the region.

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[1] National data taken from Howe and Linaweaver, The Impact of Price on Residential Water Demand and Its Relation to System Design and Price Structure.

3. The relatively modest growth projected for the region will intensify demands on the resource base, specifically fresh water on Long Island, land for housing, industry and commerce, transportation, minerals, energy, and recreational opportunities. In the absence of restrictions, the prices of these resources will rise as users compete for the limited supplies available. Price increases over time would encourage allocations of scarce resources to higher valued uses and encourage their conservation by individuals and firms.

4. While economic growth would not stop solely by a reduced supply of resources available, certain constraints do exist and they should be recognized. The intensity of resource demand relative to supply will be sufficient to discourage certain industries from locating in the region and encourage certain industries to move out of the region. Therefore, some methods of augmenting resource supplies (such as energy) must be undertaken.

5. Because of the intensity of future resource demands and discernible limitations on supply capability (e.g., land area is relatively fixed), methods of clustering certain types of growth merit serious consideration.

6. People have interrelated preferences between the place they live, the place they work, and the amount of time they will allocate to getting to and from their jobs. Restrictions upon the development of transportation networks, housing developments, or industry location are means of channeling future growth. These interrelationships must be taken into account in planning for the future of the region.

Population data for small areas and baseline projections are presented in Appendix Table 1. The small area projections, generally done at the town level, are disaggregations of the baseline OBERS county projections as discussed in the main text.

Appendix Table 1: Historical Data and Baseline Small Area Population Projections, Long Island Sound Study Region and Adjacent areas.

Area	Historical Data		Baseline Population Projections			
	1960	1970	1980	1990	2000	2020
Nassau County	1,300,171	1,428,830	1,580,400	1,677,000	1,719,500	1,794,000
Glen Cove City	23,817	25,770	29,700	31,400	32,000	33,400
Hempstead Town *	740,738	801,592	884,700	937,800	960,500	991,700
Long Beach City *	26,473	33,127	36,400	40,400	43,300	47,700
N. Hempstead Town	219,088	235,007	260,100	275,700	282,000	296,900
Oyster Bay Town	290,055	333,342	369,500	391,700	401,500	424,300
Suffolk County	666,784	1,127,030	1,635,800	2,146,800	2,596,900	3,380,000
Babylon *	142,309	203,570	254,500	303,100	329,500	371,100
Brookhaven	109,900	245,260	450,600	676,200	920,500	1,139,400
East Hampton *	8,827	10,980	15,900	36,500	62,600	108,800
Huntington	126,221	200,172	254,500	301,000	323,800	371,100
Islip *	127,959	278,880	382,000	433,900	443,200	512,100
Riverhead	14,519	18,909	34,000	67,000	108,000	224,100
Shelter Island *	1,312	1,644	2,100	4,700	8,100	14,200
Smithtown	50,347	114,657	169,800	192,100	195,500	229,200
Southampton *	27,095	36,154	47,800	85,900	131,900	256,200
Southold	13,295	16,804	24,400	46,400	73,800	153,800
Westchester County	808,891	894,104	994,700	1,059,600	1,106,400	1,188,000
Cities						
Mt. Vernon *	76,010	72,778	68,900	64,300	60,000	64,100
New Rochelle	76,812	75,385	74,900	70,600	67,400	72,500
Peekskill *	18,737	19,283	20,700	20,800	19,900	21,400
Rye	14,225	15,869	17,700	17,600	17,800	19,000
White Plains	50,485	50,125	49,200	46,700	43,200	46,300
Yonkers *	190,634	204,297	216,100	208,900	199,600	213,800
Towns						
Bedford	14,656	18,329	22,600	29,000	36,800	39,200
Cortlandt*	26,336	34,393	42,400	50,900	57,900	63,000
Eastchester	33,613	36,660	39,400	40,500	39,900	42,800
Greenburgh*	76,213	85,746	103,400	116,300	123,300	133,000
Harrison	19,201	21,544	23,600	24,900	25,200	27,300
Levisboro *	4,465	6,610	9,800	14,500	19,900	21,400
Mamaroneck	29,107	31,243	33,400	34,200	33,600	35,600
Mt. Pleasant*	34,955	38,535	42,400	44,600	45,300	48,700
New Castle *	14,388	19,837	25,600	32,100	38,900	41,600
North Castle*	6,797	9,591	14,700	20,800	26,300	28,500
North Salem *	2,345	3,828	5,900	9,300	13,600	14,300
Ossining *	26,199	32,397	39,400	45,700	50,600	54,600
Pelham	13,404	13,933	14,700	14,500	13,600	14,300
Pound Ridge*	2,573	3,792	4,900	8,300	11,500	11,900
Rye	38,147	42,234	47,200	48,700	48,500	52,300
Scarsdale	17,968	19,229	20,700	20,800	21,000	22,600
Somers *	5,468	9,402	15,700	21,700	27,300	29,700
Yorktown *	16,453	28,064	41,400	53,900	65,300	70,100

Appendix Table 1 :(Continued)

County & Town	Historical Data			Projected Population		
	1960	1970	1980	1990	2000	2020
Fairfield County	653,589	792,814	893,900	990,500	1,068,500	1,203,000
Bethel*	8,200	10,945	13,500	16,300	19,300	21,800
Bridgeport	156,748	156,542	157,000	158,000	158,500	158,000
Brookfield*	3,405	9,688	13,000	16,500	20,500	23, 00
Danbury	39,382	50,781	56,100	62,400	69,300	78,100
Darien*	18,437	20,411	22,500	24,000	26,000	33,000
Easton	3,407	4,885	6,900	8,200	10,500	12,300
Fairfield	46,183	56,487	65,500	72,400	73,200	82,000
Greenwich	53,793	59,755	66,200	71,900	74,900	84,300
Monroe	6,402	12,047	15,100	18,200	21,500	24,200
New Canaan	13,466	17,455	22,500	26,300	28,500	32,100
New Fairfield*	3,355	6,991	9,100	11,300	13,700	15,400
Newtown*	11,373	16,942	20,600	26,700	33,400	37,000
Norwalk	67,775	79,113	88,200	93,000	95,800	115,000
Redding*	3,359	5,590	7,500	9,500	11,800	13,200
Ridgefield*	8,165	18,188	20,600	28,000	34,500	40,000
Shelton	18,190	27,165	33,800	40,900	48,600	54,800
Sherman*	825	1,459	1,900	2,400	3,000	3,400
Stamford	92,713	108,798	112,000	114,000	116,500	134,900
Stratford	45,012	49,775	58,900	63,800	66,500	74,800
Trumbull	20,379	31,394	40,500	49,300	53,100	59,800
Weston	4,039	7,417	10,200	12,200	12,700	14,300
Westport	20,955	27,414	34,400	43,000	51,200	58,000
Wilton	8,026	13,572	17,900	22,200	25,500	33,500
New Haven County	660,315	744,948	839,400	928,100	993,100	1,107,000
Ansonia	19,819	21,160	22,600	24,100	26,700	28,900
Beacon Falls*	2,886	3,546	6,500	9,300	11,900	15,300
Bethany	2,384	3,857	6,300	8,600	12,000	19,200
Branford	16,610	20,444	24,900	27,200	32,100	36,900
Cheshire*	13,383	19,051	25,000	30,600	33,000	40,200
Derby	12,132	12,599	15,300	17,800	19,300	23,500
East Haven	21,388	25,120	30,100	34,900	37,000	43,000
Guilford	7,913	12,033	15,000	17,800	20,500	25,800
Hamden	41,056	49,357	55,700	62,200	65,200	79,400
Madison	4,567	9,768	11,900	14,000	16,000	20,800
Meriden	51,850	55,959	61,600	65,600	69,900	75,000
Middlebury*	4,785	5,542	7,700	9,800	11,800	15,200
Milford	41,662	50,858	57,000	62,000	64,200	66,000
Naugatuck*	19,511	23,034	26,400	30,000	33,200	37,000
New Haven	152,048	137,707	134,400	132,700	129,700	128,700
North Branford	6,771	10,778	15,000	19,100	22,800	27,500
North Haven	15,935	22,194	27,200	32,300	35,500	42,700
Orange*	8,547	13,524	18,100	22,700	24,000	26,000
Oxford*	3,292	4,480	5,900	7,100	8,300	9,300
Prospect*	4,367	6,543	9,800	13,000	15,900	17,700
Seymour	10,100	12,776	16,300	19,800	22,800	25,400
Southbury*	5,186	7,852	12,500	15,100	17,500	21,500
Wallingford	29,920	35,714	40,700	43,900	45,400	50,200
Waterbury*	107,130	108,033	111,400	115,500	117,000	120,000
West Haven	43,002	52,851	54,200	57,800	60,500	65,100
Wolcott*	8,889	12,495	16,400	20,100	23,500	26,200
Woodbridge	5,182	7,673	11,500	15,100	17,400	20,500

Appendix Table 1 : (continued)

County & Town	Historical Data		Projected Population			
	1960	1970	1980	1990	2000	2020
Middlesex County	88,865	115,018	139,700	164,900	186,300	224,000
Chester	2,520	2,982	4,400	5,800	7,300	8,800
Clinton	4,166	10,267	14,000	17,900	19,200	23,000
Cromwell*	6,780	7,400	8,500	9,500	10,500	13,000
Deep River	2,968	3,690	5,000	7,000	8,500	11,000
Durham*	3,096	4,489	5,600	7,200	9,400	11,200
East Haddam*	3,637	4,676	6,200	7,500	9,000	11,500
East Hampton*	5,403	7,078	8,000	9,900	11,500	14,500
Essex	4,057	4,911	6,000	7,000	8,000	10,500
Haddam*	3,466	4,934	7,000	8,500	9,500	12,000
Killingworth	1,098	2,435	5,500	6,000	6,600	7,900
Middlefield*	3,255	4,132	4,500	5,500	7,100	8,500
Middletown*	33,250	36,924	38,400	40,500	42,000	47,400
Old Saybrook	5,274	8,468	10,500	12,600	14,700	15,800
Portland*	7,496	8,812	10,500	12,600	14,500	17,700
Westbrook	2,399	3,820	5,600	7,400	8,500	11,200
New London County	185,745	230,654	259,700	289,900	312,700	353,000
Bozrah	1,590	2,036	3,100	4,000	4,800	5,400
Colchester	4,648	6,603	8,500	10,400	11,600	13,200
East Lyme	6,782	11,399	13,200	15,100	16,400	18,600
Franklin	974	1,356	1,700	2,000	2,200	2,500
Griswold	6,472	7,763	8,400	9,200	9,700	11,000
Groton	29,937	38,244	41,900	44,800	46,800	51,300
Lebanon*	2,434	3,804	5,000	5,500	6,000	6,500
Ledyard	5,395	14,837	16,500	18,600	20,100	22,600
Lisbon	2,019	2,808	3,700	4,600	5,300	6,000
Lyme	1,183	1,484	2,100	2,600	3,000	3,400
Montville	7,759	15,662	18,200	20,600	22,400	25,300
New London	34,182	31,630	31,300	31,900	32,200	33,000
North Stonington	1,982	3,748	5,400	7,000	8,500	12,000
Norwich	38,506	41,739	44,300	46,500	48,500	55,300
Old Lyme*	3,068	4,964	6,500	7,900	9,200	10,400
Preston	4,992	3,593	4,500	5,400	6,100	6,800
Salem	925	1,453	2,300	3,100	3,800	4,300
Sprague	2,509	2,912	3,300	3,600	3,800	4,200
Stonington	13,969	15,940	17,900	21,700	23,200	27,100
Voluntown	1,028	1,452	1,700	1,900	2,200	2,500
Waterford	15,391	17,227	20,200	23,500	26,900	31,600

*Areas outside LISS study area, but part of the counties for which OBERS projections were prepared.

Source: Historic data is April 1 census data. County projections are mid-year projections from the Bureau of Economic Analysis, Department of Commerce In Connecticut, Town projections were derived from allocators from a computer run of the allocation model developed by the Connecticut Interregional Planning Program. Some town adjustments were made based on a current evaluation of specific towns potential for future growth.

APPENDIX B
PROJECTION METHODOLOGY

B.0 INTRODUCTION

This report presents projections of economic activity and population for the counties within the Long Island Sound Study Region. The area delineation follows county boundaries and includes the whole of all counties which contribute economically to the entire region.

These projections are an extension of the OBERS [1] water resources program which has produced historical and projected measures of economic activity for the Nation and its subareas. The measures produced include personal income, population, per capita income, employment, and earnings, with the last item shown for each of 37 industries. Historical data are presented for 1959 and 1970, and projected data for 1980, 1990, 2000, and 2020 (Tables 2 to 17).

These projections, as with all efforts to look into the economic future, are based upon an extension of past relationships. The methodology used has four characteristics which distinguish the results from those which would result from a simple linear extension of trends at summary levels.

First, the basic projections were made for 173 economic areas which cover the Nation. These areas were delineated by BEA on the basis of criteria that make them especially suitable for economic analysis and projection.

Second, the economic area projections were made within the framework of projections of the overall U.S. economy. That is projections of population, employment, income, and earnings were made first for the Nation as a whole and then disaggregated geographically.

Third, the projections were based on the assumption that people migrate to areas of economic opportunity and away from declining areas. Accordingly, projections of area income and employment were prepared first, and projections of area population derived from them.

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[1] The OBERS program, initiated at the request of the Water Resources Council (WRC) is a joint undertaking of the Bureau of Economic Analysis (BEA) of the Department of Commerce and the Economic Research Service (ERS) of the Department of Agriculture. This program acquired the acronym of OBERS in the mid 1960's at which time BEA was named the Office of Business Economics (OBE) and is a combination of OBE–ERS. The widespread acceptance of the term has led to its continued use as a descriptive title of the projection program even though OBE has been renamed BEA.

Fourth, projections of income and employment were prepared for as many as 37 individual industries in each of the 173 areas. Various methods were used to make the projections, depending upon the individual industry's role in each area's economy. However, the methods used insure that in each of the 173 areas the projected income and employment constitute an economy with an internally balanced structure. Because the projections were prepared in industrial detail they reflect the effects of variations in growth rates among individual industries which makes it possible for the projected overall economic path of an area to depart substantially from its past trend.

The projections in this report were prepared by disaggregating the economic area projections developed under the OBERS program into SMSA and non SMSA components and subsequently disaggregating to individual counties. This procedure builds on the large amount of analytical work done for the Nation and its economic areas and yields a set of projections which are consistent with those being used by other Federal and State agencies in planning. The projections at the economic area level have been reviewed by many State and Federal agencies. Their suggested changes have been evaluated and taken into account.[2]

B.1 Nature of the Projections

These projections, as are all other projections, are conditional forecasts of the future. Inasmuch as it is not possible to foresee the future, however, projections must be based on an extension of past relationships believed to have future relevance for the measures being projected. The choice of the past relationships to be extended and the methodology for extending them are based on assumptions, some of which are stated explicitly and some of which are implicit in the projection methodology. The projections represent estimates of economic activity expected to develop during the projection period if all assumed conditions materialize. The assumptions chosen represent those conditions believed to have the greatest probability of realization. Thus the projections represent an attempt, imperfect though it may be, to forecast the economic future with the specification of assumptions and methodology introducing maximum objectivity into the process and giving the user a basis for appraising the validity of the projections. The specification of assumptions and methodology facilitates the construction of alternative projections based on different assumptions and provides a foundation for the evaluation of program-oriented "what if" questions. In particular, alternative projections are useful to reflect assumptions that are likely to materialize if a special program or policy is undertaken to bring them about.

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[2] A detailed explanation of the concepts and methodology used in preparing the OBERS projections is contained in a report published by the WRC entitled, The 1972 OBERS projections – Regional Economic Activity in the United States by BEA Economic Area, Water Resources Region and Subarea, and States, Historical and Projected 1929-2020, September 1972.

Reliability. Differing orders of reliability characterize the
various elements of the projections. These differences are caused by var-
iations in the length of the projection period, the size of the aggregate
being projected, the potential for product substitution, and many other
factors. A general understanding on the part of the user of the degree of
reliability associated with any projection should help avoid misinterpretation
and inappropriate use. However, levels of reliability for the projections
cannot be stated in statistical terms. They can only be evaluated qual-
itatively by the user with the results interpreted in light of the uses to
which the projections will be put.

Long range projections are less reliable than are those made for short
periods; projections of small aggregates are less reliable than those of large
magnitude. Thus, projections for 1980 are more reliable than those for 2020
and the reliability associated with the projections for any given industry in
a county is less than that for the same industry in the Nation as a whole. The
reliability of the projections for a minor industry will be much less than that
for the more aggregated estimates of total production, total employment or total
income.

Another major factor in reliability of the projections arises from
differences in the confidence that can be attached to the basic assumptions
used. Some assumptions are highly reliable characterizations of the future
while others are more conjectural. A projection of the labor force at the
national level for 1990, for example, will almost certainly be quite accurate
because the labor force for those years will be drawn almost entirely from a
population whose number and age distribution are known quite accurately at
the present time. The only major uncertainty is the proportion of the popu-
lation that will desire to enter the labor force and this fraction exhibits
substantial stability. However, projection of the labor force or of employ-
ment in a given sub-national area is related not only to the current popu-
lation of that area but also to interregional migration resulting mainly from
change in employment opportunities. Such opportunities are among the more
difficult elements to project. Therefore, the future labor force of the smaller
area, depending as it does on factors which are less certain than those de-
termining the size of the national labor force, is subject to a larger margin
of error.

Potential errors in the planning process growing out of errors in
the projections cannot be eliminated, but their effects can be minimized
through the use of sensitivity analysis and the maintenance of flexibility
in plans in order to accommodate deviations from the projections when they
occur.

Assumptions. The projections are based on longrun or secular trends
and ignore the cyclical fluctuations which characterize the shortrun path of
the economy. The general assumptions that underlie the projections are as
follows:

(1) Growth of population will be conditioned by a decline of
     fertility rates from those of the 1962-1965 period.

(2) Nationally, reasonably full employment, represented by a
     4 percent unemployment rate, will prevail at the points for
     which projections are made; as in the past, unemployment will
     be disproportionately distributed regionally, but the
     disproportion will diminish.

(3) No foreign conflicts are assumed to occur at the projection
     dates.

(4) Continued technological progress and capital accumulation will
     support a growth in private output per manhour of 3 percent
     annually.

(5) The new products that will appear will be accommodated within
     the existing industrial classification system, and, therefore,
     no new industrial classifications are provided.

(6) Growth in output can be achieved without ecological disaster
     or serious deterioration, although diversion of resources for
     pollution control will cause changes in the industrial mix of
     output.

The regional projections are based on the following additional
assumptions:

(1) Most factors that have influenced historical shifts in "export"
     industry location will continue into the future with varying
     degrees of intensity.

(2) Trends toward economic area self-sufficiency in local-service
     industries will continue.

(3) Workers will migrate to areas of economic opportunities and
     away from slow-growth or declining areas.

(4) Regional earnings per worker and income per capita will continue
     to converge toward the national average.

(5) Regional employment/population ratios will tend to move toward
     the national ratio.

The county level projections for the New York portion of the region
are based on three additional assumptions.

(1) New York City will continue to be the nucleus about which future
     population growth will be arrayed.

(2) Nassau and southern Westchester counties will become increasingly saturated over time and housing costs will escalate. This will force more of the metropolitan growth to outer suburbs.

(3) Resource supplies will not constrain future growth in the region.

B.2 Projection Methodology for Constituent Counties of the Long Island Sound Region

The projections were made in five major steps.

First, population, employment, Gross National Product, personal income and earnings were projected for the Nation. Second, the projected national totals of output, employment, and earnings were disaggregated industrially on the basis of projected trends in industry shares of the national totals, modified as necessary by projected trends in the interrelationships of the three aggregates for each industry.

The third step was to allocate the projected national totals of income and employment to the 173 economic areas into which the Bureau of Economic Analysis has divided the country. This was done by extending past trends in income and employment on an industry by industry basis.

The fourth step was to derive area population totals from projected area employment.

The fifth step was to disaggregate the projected economic area figures so as to obtain the county level projections for the Long Island Region.

The projection procedure was not a mechanical one. At various points in the process, it was essential that judgment be brought to bear, both in estimating the future rate of change in the industrial composition and location of production, and in checking the consistency of the projections. In particular, where employment and earnings were projected separately, it was necessary to review the implied industrial and regional patterns of earnings per worker in order to insure reasonable relationships between employment and earnings.

The decision to derive regional projections through the disaggregation of national totals instead of through the independent projection of each component in each region was based on the assumption that the larger the economic area, the more adequate and reliable are the available statistical measures and the more reliable are the projections that can be made. This assumption applies also to the decision to derive projections of industrial detail at the national level by first projecting national employment, output, and earnings and then disaggregating them into national totals for individual industries. Of course, it should be obvious that the disaggregation approach is also subject to substantial error as is any procedure for forecasting the economic future.

Gross national product. The initial step in preparing the national projections was the projection of the gross national product. This was done by multiplying projected man-hours worked by projected product per man-hour. The variables which entered into the determination of man-hours worked included the working age population, labor force participation rates, general government employment (civilian and military), and hours worked per year per man.

The Bureau of the Census makes several different national population projections at any given time, with the birthrate assumption being the varying element. In light of all factors that could be ascertained in mid-1969, when the decision was made regarding the projected national population to be used, the "C" series was selected. Of the five Census Bureau population projections, this series has the second fastest growth rate. It assumes a trend toward a total fertility rate of 2,787 births per 1,000 women in the year 2000 which is below the rate of 3,300 in 1962 through 1965, but above the preliminary 1970 rate of 2,472. The "C" series shows national population increasing from 203 million in 1970 to 400 million in 2020, an approximate doubling in 50 years. The "E" series, which utilizes a lower fertility rate than does "C" series and for that reason would be the choice of many persons today, is 4.4 percent lower than the "C" series in 1990, 12 percent lower in 2000, and 23 percent lower in 2020.

The working age population, labor force participation, unemployment rate, and hours worked per man per year were each projected separately using all information and analyses available in each case. The population of working age by age and sex is a subset of the total population. The labor force was derived by applying age and sex specific participation rates developed by the Bureau of Labor Statistics to the working age population. A 4 percent unemployment rate was adopted as representing full employment nationally. Hours worked per man year in the private economy were projected to decrease by 0.25 percent per year, compared to the post World War II average decrease of 0.4 percent per year.

Real gross product per man-hour (productivity) in the private economy increased at an annual rate of 3.2 percent from 1950 to 1968. The projection puts productivity growth at an annual rate of increase of 3 percent from 1968 to 2020. This projected rate is somewhat lower than the 1950-68 rate to allow for the fact that some part of the productivity growth in 1950-68 was attributable to a massive movement from farm to nonfarm work which cannot be repeated on a similar scale in the future. There is a variety of opinion on the validity of the 3 percent rate. Some forecasts would lower the projected rate still further because of the projected shift in work force distribution away from higher productivity manufacturing to the lower productivity service industries; others would raise it on the grounds of expected technological advances.

Private gross product was projected by multiplying man-hours in the private sector by private gross product per man-hour. Constant dollar government gross product was projected in accordance with conventional national income and product accounting practices as the projected number of general government employees times average compensation in the base year (1958).

The sum of projected private and government gross product equals projected constant dollar GNP, which is projected to grow at an annual rate of 4 percent from 1968 to 2020.

Since measures of gross regional product have not been constructed, it was necessary to translate GNP into national measures which could be prepared regionally.

Personal income and earnings. The measures chosen for this purpose were personal income and its earnings of persons component (the sum of wages and salaries, other labor income, and proprietors income). The choice rested on three considerations. First, personal income has a comparatively constant relationship to gross national product; second, its regional location is clear and can be measured with current data sources; and, third, the methodology for preparing regional estimates of personal income had already been developed.

Projected national personal income was derived from the historical relationship between constant dollar personal income and constant dollar GNP. A function was fitted mathematically to past values of the income/GNP ratio and extended to 2020. The projected ratio for each decade was applied to projected GNP to derive projected personal income.

In a similar manner, the ratio of earnings of persons to total personal income was projected and applied to projected personal income in constant dollars to yield projected earnings in constant dollars.

Industry detail. The projected values of three national aggregate measures were disaggregated industrially. The three measures are gross product (which at the industry level is gross product originating, or GPO), earnings of persons, and employment. The disaggregation was into 37 industry groups for which local area data on earnings and employment are available. When the SMSA projections were broken out from the economic area projections the 37 industries were combined into 28. The disaggregation was made by extrapolating 1948 through 1968 trends in the industrial composition of gross product, earnings of persons, and employment. That is, each industry's share in total GNP, total earnings, and total employment was extrapolated and applied to the projected all-industry totals of GNP, earnings, and employment.

The resulting projections of GNP, earnings, and employment for each industry were then reconciled. The reconciliation focused on two major considerations. First, projected industry GPO, earnings, and employment were examined in the light of historical trends in the relationships among earnings per worker, GPO per worker, and earnings as a percent of gross product. Second, those ratio relationships for each industry were reviewed in the light of the corresponding all-industry ratios, to judge how well the projected data adhered to the empirical observation that interindustry differences in earnings per worker and GPO per worker diminish over time.

The national projections of industry employment used the data on "persons engaged in production" that are calculated by BEA as an adjunct to the national income and product accounts. These data are conceptually consistent with the series on gross product originating and earnings. However, the "persons engaged in production" series is not available on a regional basis. The only employment data with adequate industrial detail now available for local areas are from the decennial censuses of population. It was necessary, therefore, to convert the projected national industry employment to the Census employment concepts. This was done by first eliminating government workers from the various industries. The resulting 1960 Census employment figures for each industry were then extrapolated forward by the projected change in the "persons engaged" series (1970 Census employment data were not available for all States at the time these projections were prepared). Independently projected estimates of government employment were then added to projected private employment in the appropriate private industries to yield national totals of employment for distribution to economic areas.

Economic Areas. Once projections had been made at the national level for gross product, earnings, and employment by industry, the national industry totals were allocated to subnational areas. The areas chosen were the 1973 economic areas into which BEA has divided the country as part of its program of regional measurement, analysis, and projection. Each area consists of an urban center and surrounding counties which are tied to the center by economic activity. Each area generally combines place of residence and place of work so that there is a minimum of commuting across area boundaries.

Each economic area has two types of industries. "Export" industries produce goods and services that are for the most part exported to other areas, providing most of the earnings with which the area residents purchase the specialized goods and services of other areas. "Residentiary" industries produce most of the services and some of the goods required by local business as intermediate products and by the household sector. Each economic area approaches self-sufficiency with respect to its residentiary industries.

There is a general similarity among economic areas in the interindustry relationships among residentiary industries and between total export and total residentiary industries within each area. Moreover, these interindustry relationships within areas exhibit substantial stability over time, although they do change as a result of secular trends and developmental thresholds (points at which local markets for intermediate or consumer products become large enough for local production to supplant all or a portion of imports). These characteristics of similarity and stability make the BEA economic areas superior for projection purposes to geographic areas delineated in accordance with other criteria. For example, the relationships among industries located with a single county appear to be meaningless and random. Such relationships would acquire meaning, of course, if data were available on the county's imports and exports so that total input requirements of each local industry could be calculated. However, assembly of such data at the

county level would be a near impossibility. Use of the BEA economic areas for projections and analyses makes it unnecessary to have such data for residentiary industries, though export-import information is still needed for the export industries.

Local area economic measures. The local area economic measures used in the projections are population, total personal income, earnings by industry or origin and employment by industry.

Estimates of total personal income, earnings by industry, and the nonearnings component of personal income in each SMSA and non-SMSA county have been prepared by BEA for 1929, 1940, 1950, 1959, 1962, and annually from 1965 forward. These were aggregated to the 173 economic areas. Estimates of employment for 1962, 1965, and 1966 were made by moving census data for 1960 forward with employment data from County Business Patterns, supplemented by data from the American Railroad Association, the American Hospital Association, the Social Security Administration, State employment security agencies and several economic censuses. Because there is very little commuting across economic area lines, the census-based employment data for economic areas, which reflect residence of the employees, are compatible with the earnings data which reflect place of work.

Economic area projections: export industries. Projections of employment and earnings in export industries were made industry by industry, for each economic area, on the basis of projections of the trends in the area's share of total national employment and earnings in each industry. The trends in the shares were projected into the future by fitting least squares regression lines to the logarithms of the historical values of the share and to the logarithms of time and extending these curves to 2020. The projected shares derived in this manner were modified judgmentally in some cases, mainly where natural resources were expected to be depleted or where the historical data appeared weak or in error. The projected area shares after being forced to total 100 percent, were applied to the appropriate national totals and projected absolute values were calculated.

Earnings and employment in each export industry were projected independently for each economic area. From these, projected earnings per worker were calculated and expressed as a percent of national earnings per worker in the industry. These ratios were used to discover inconsistencies between projected employment and projected earnings. When inconsistencies were found, the data were reviewed in the light of information from other sources and the two projections were reconciled. In most instances, this review pointed clearly to the need for a change in either projected earnings or projected employment, but occasionally compromise was necessary and both were adjusted.

Economic area projections: residentiary industries. Projected area earnings in each residentiary industry were derived from the following relationships: (1) The projected regional location quotient (LQ) for the industry, i.e., the ratio of the industry's share of total area earnings to the industry's share of total national earnings; (2) the projected national ratio of earnings in the industry to total national earnings; and (3) projected earnings in total export industries in the area.

The area LQ's for each residentiary industry - item (1) above --
were projected as follows: Analysis of changes in the area LQ's of individual
residentiary industries from 1950 to 1969 showed that economic areas trend
toward self-sufficiency in residentiary industries, i.e., LQ's trend toward
1.0. Analysis also showed that the slope of the trend depends upon the magni-
tude of the LQ. From this analysis, trend values for change in LQ's were set
for several different ranges of LQ value. These trend values were then applied
to the LQ of each residentiary industry in 1969 and projected LQ's were
determined for 1980, 1990, 2000, 2010, and 2020.

The projected national ratio of earnings in each residentiary indus-
try to total national earnings (relationship 2 above) was calculated from the
national industry earnings projections noted as the second step of the overall
projections methodology.

Relationship 3 was derived from summing earnings of export indus-
tries already projected for each economic area.

Projected earnings for each residentiary industry in each area were
derived as follows: First, the projected LQ for each residentiary industry
(relationship 1) was multiplied by the projected national ratio of earnings in
that residentiary industry to total national earnings (relationship 2). This
computation gave the projected share of the residentiary industry in the area's
all-industry earnings. These shares were summed for all residentiary indus-
tries in the area. Subtracting the sum of residentiary shares from unity gave
the export industry share. Division of this share into the projected absolute
value of export industry earnings--already calculated--yielded projected all-
industry earnings for the area. To this total was applied the projected share
of each residentiary industry in the area's all-industry earnings (the product
of relationships 1 and 2) to obtain the projected absolute value of earnings
in each residentiary industry in each area. The sum of the area values for
each residentiary industry was forced to equal the previously projected
national total for the industry, thereby keeping the projected series within
the framework of the national projections.

A comparable procedure was used to project residentiary employment
by area. As in the case of the export industry projections, projected resi-
dentiary employment and earnings were reconciled. This took place through
the use of the relative earnings per worker.

Certain industries are classed as residentiary in some areas and
export in others. For example, in one area, hotels may serve principally the
business community and local residents while in another, such as Las Vegas,
they may provide recreation for visitors and so form an export industry.
Similarly, in one area, printing and publishing may involve only local news-
paper publishing and local business printing, whereas, in another area, it
may serve a national market through book and magazine publishing. In each
area, employment and earnings in such industries were projected in accordance
with each industry's character in that area. This procedure necessitated a
break of the projected national totals for these industries into that portion
to be treated as export and that as residentiary.

Total earnings, the sum of export and residentiary industry earnings, make up about 80 percent of total personal income. To complete the projections, property income, transfer payments, and contributions to social insurance (which are netted out of personal income) were projected by modification of the procedure used for residentiary industries.

Population projections. The national increase in population in an area – births minus deaths – can be projected quite accurately when the national fertility rate is assumed. The critical element in a local-area population projection made within a given national population total is inter-area migration. As previously noted it was assumed in these projections that the major motivating factor in migration is economic opportunity except in a few areas which attract an especially large number of retiring persons. Accordingly, changes in area population were projected as a function of changes in area employment.

Historically, there has been some variation among areas in the ratio of population to employment because of differences in unemployment and in labor force participation. The projection techniques recognize these differences but assume that they will gradually disappear. As stated in the summary of assumptions, 4 percent unemployment was assumed nationally but not in each individual area.

The projected increases in employment were transplanted into population changes by applying the projected national population/employment ratio to area changes in employment. In areas where retired persons comprise an especially large proportion of the population – and measured labor force participation is unusually low -- the retirement population was projected separately from the remainder.

Historically, area per capita incomes have converged slowly toward the national average, and the projected area per capita incomes derived from projected personal income and projected population were analyzed with this in mind. In a few cases, the behavior of projected per capita income suggested need for re-examination and sometimes a modification of the projected components.

County Projections for the Long Island Sound Study. The final step in deriving the county projections was to separate the projections for the 173 BEA economic areas into SMSA's[3]/ and into remaining non-SMSA counties. The separation into segments was done by projecting each segment's share of the economic area population, personal income, total employment, and earnings, industry-by-industry, on the basis of historical trends in the shares. Projected county shares were applied to the appropriate economic area total to obtain absolute values for each county segment. This procedure was applied to both export and residentiary industries, as the disaggregation of area totals into county segments invalidated the functional relationships between export and residentiary industries that hold for economic areas and that can be used at that level to project residentiary industry activity on the basis of export industry activity.

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3/ The New England SMSA's have been defined by BEA on a county rather than a township basis.

The BEA figures on total and per capita income for SMSA's are expressed on a residence basis (income of residents of the area). In most SMSA's, however, income figures on a where-earned basis would differ from those on a residence basis because there is some commuting across SMSA boundaries. The data used for adjusting the SMSA income series to a residence basis (for the basic data are projected on a where-earned basis) are statistically weak and no attempt was made to project such adjustments directly. Instead, per capita income in each SMSA was projected as a function of national per capita income, and multiplied by projected SMSA population to give projected total personal income by SMSA.

These procedures yielded projections for SMSA's and non SMSA segments in Connecticut that conform to the county delineations used for Long Island Sound Regional Study. The New York SMSA included New York City, Suffolk, Nassau, Westchester and Rockland counties.

To obtain county level population projections in New York, past trends were analyzed in each county's population growth pattern, density, and share of net SMSA change within the general framework of urban growth theory. From this analysis, the various counties were assigned a share of future gains in the SMSA's population. The assignments were based primarily on the 1959-1970 distribution with adjustments reflecting (1) the rate of change in the county's share of net SMSA population growth, (2) the degree of saturation experienced within the county based on the preceding decade's projected population, and (3) reasonable relationships among the five components of the SMSA.

Employment was projected based on a trended population/employment ratic of the individual counties relative to the nation for the Series E projections. Labor force participation rates increase over time, as what would be expected with fewer births and more female workers. Per capita income was derived from trended county level per capita income relative to the nation. Absolute values of projected per capita personal income multiplied by projected population yielded projected total personal income. Due to the difficulty of directly projecting income trends, personal income and per capita income are perhaps the least reliable measures projected for the county components of the New York SMSA.

Industrially detailed earnings were projected within the New York SMSA by moving the 1970 county level earnings estimate forward with the projected SMSA industrially detailed growth rate. The procedure allows counties to change as a function of their own industrial mix and in proportion to larger area growth trends in each industry. Although this procedure accounts for displacements into or out of the New York SMSA with other parts of the nation, it does not fully allow for large displacements among counties within the SMSA and the related changes in industrial mix.

Because all of the county level projections developed for the Long Island Sound Study were derived from the nationwide OBERS projection system, the projections are consistent with higher level projections for economic areas, states, and the nation.

Appendix Table 2:

POPULATION TRENDS IN LONG ISLAND SOUND STUDY REGION, BY AREA
SELECTED YEARS, 1950-2020

AREA	HISTORICAL			PROJECTED			
	1950	1959	1970	1980	1990	2000	2020
TOTAL LIS STUDY REGION	10,846,134	12,213,472	13,475,322	14,762,200	16,046,700	17,025,700	18,730,000
FAIRFIELD COUNTY CONN.	506,533	659,435	794,588	893,900	990,500	1,068,500	1,203,000
MIDDLESEX COUNTY CONN.	67,625	89,436	115,275	139,700	164,900	186,300	224,000
NEW HAVEN COUNTY CONN.	543,155	657,129	746,614	839,400	928,100	993,100	1,107,000
NEW LONDON COUNTY CONN.	145,450	184,849	231,170	259,700	289,900	312,700	353,000
TOTAL CONNECTICUT STUDY REGION	1,467,763	1,580,849	1,887,647	2,132,700	2,373,400	2,560,600	2,887,000
NASSAU COUNTY N.Y.	674,344	1,292,633	1,430,305	1,580,400	1,677,000	1,719,500	1,794,000
ROCKLAND COUNTY N.Y.	89,486	136,010	230,139	332,900	520,900	611,900	770,000
SUFFOLK COUNTY N.Y.	276,777	662,918	1,128,187	1,635,800	2,146,800	2,596,900	3,380,000
WESTCHESTER COUNTY N.Y.	627,785	804,201	895,372	994,700	1,059,600	1,106,400	1,188,000
NEW YORK CITY N.Y.	7,910,479	7,736,861	7,903,672	8,085,700	8,269,000	8,430,400	8,711,000
TOTAL NEW YORK STUDY REGION	9,578,371	10,632,623	11,587,675	12,629,500	13,673,300	14,465,100	15,843,000

NOTE: BASED ON SERIES E NATIONAL POPULATION PROJECTIONS

Appendix Table 3:

EMPLOYMENT TRENDS IN LONG ISLAND SOUND STUDY REGION, BY AREA
SELECTED YEARS, 1950-2020

AREA	HISTORICAL			PROJECTED			
	1950	1960	1970	1980	1990	2000	2020
TOTAL LIS STUDY REGION	4,452,485	5,029,076	5,435,551	6,459,000	7,009,000	7,635,000	8,230,000
FAIRFIELD COUNTY CONN.	208,530	263,951	331,860	408,000	453,000	503,000	557,000
MIDDLESEX COUNTY CONN.	26,277	35,186	47,840	63,000	75,000	87,000	103,000
NEW HAVEN COUNTY CONN.	224,802	264,086	312,095	383,000	424,000	468,000	513,000
NEW LONDON COUNTY CONN.	57,412	72,978	94,642	116,000	130,000	144,000	160,000
TOTAL CONNECTICUT STUDY REGION	517,021	636,201	786,437	969,000	1,081,000	1,202,000	1,333,000
NASSAU COUNTY N.Y.	261,711	476,543	575,678	692,000	736,000	779,000	798,000
ROCKLAND COUNTY N.Y.	31,236	47,264	85,475	134,000	210,000	255,000	315,000
SUFFOLK COUNTY N.Y.	93,839	217,633	393,003	623,000	820,000	1,021,000	1,308,000
WESTCHESTER COUNTY N.Y.	258,808	330,659	376,791	458,000	490,000	526,000	556,000
NEW YORK CITY N.Y.	3,289,870	3,320,776	3,218,167	3,582,000	3,671,000	3,853,000	3,920,000
TOTAL NEW YORK STUDY REGION	3,935,464	4,392,875	4,649,114	5,489,000	5,928,000	6,432,000	6,897,000

NOTE: THE EMPLOYMENT CONCEPT USED HERE INCLUDES ALL EMPLOYED PERSONS 14 YEARS
OF AGE AND OLDER, INCLUDING THOSE IN THE ARMED FORCES
BASED ON LOCATION OF RESIDENCE
HISTORICAL DATA FROM THE U.S. BUREAU OF THE CENSUS

Appendix Table 4:

PERSONAL INCOME TRENDS FOR THE LONG ISLAND SOUND STUDY REGION, BY AREA
SELECTED YEARS, 1950-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

AREA	HISTORICAL			PROJECTED			
	1950	1959	1970	1980	1990	2000	2020
TOTAL LIS STUDY REGION	30,789,000	40,177,000	62,421,000	92,282,000	126,857,000	176,387,000	311,102,000
FAIRFIELD COUNTY CONN.	1,283,000	1,954,000	3,435,000	5,145,000	7,264,000	10,375,000	18,929,000
MIDDLESEX COUNTY CONN.	156,000	242,000	455,000	751,000	1,145,000	1,713,000	3,337,000
NEW HAVEN COUNTY CONN.	1,376,000	1,924,000	2,993,000	4,478,000	6,193,000	8,774,000	15,850,000
NEW LONDON COUNTY CONN.	330,000	518,000	818,000	1,194,000	1,639,000	2,340,000	4,492,000
TOTAL CONNECTICUT STUDY REGION	3,145,000	4,646,000	7,701,000	11,568,000	16,241,000	23,203,000	42,610,000
NASSAU COUNTY N.Y.	1,852,000	4,131,000	6,577,000	10,005,000	13,664,000	18,549,000	31,364,000
ROCKLAND COUNTY N.Y.	207,000	369,000	545,000	1,546,000	2,984,000	4,641,000	9,902,000
SUFFOLK COUNTY N.Y.	606,000	1,678,000	3,531,000	6,680,000	11,251,000	18,019,000	39,349,000
WESTCHESTER COUNTY N.Y.	1,628,000	2,709,000	4,483,000	6,991,000	9,824,000	13,582,000	23,114,000
NEW YORK CITY N.Y.	23,351,000	26,645,000	39,184,000	55,290,000	72,891,000	98,391,000	164,759,000
TOTAL NEW YORK STUDY REGION	27,644,000	35,531,000	54,720,000	80,714,000	110,615,000	153,184,000	268,492,000

Appendix Table 5:

PER CAPITA INCOME TRENDS FOR THE LONG ISLAND SOUND STUDY REGION, BY AREA
SELECTED YEARS, 1950-2020

IN CONSTANT 1967 DOLLARS

AREA	HISTORICAL			PROJECTED			
	1950	1959	1970	1980	1990	2000	2020
TOTAL LIS STUDY REGION	2,939	3,290	4,632	6,251	7,905	10,360	16,610
FAIRFIELD COUNTY CONN.	2,534	3,011	4,323	5,756	7,334	9,710	15,735
MIDDLESEX COUNTY CONN.	2,314	2,731	3,953	5,378	6,945	9,195	14,901
NEW HAVEN COUNTY CONN.	2,510	2,933	4,009	5,335	6,673	8,835	14,318
NEW LONDON COUNTY CONN.	2,265	2,804	3,538	4,598	5,654	7,486	12,728
TOTAL CONNECTICUT STUDY REGION	2,481	2,939	4,080	5,424	6,843	9,062	14,759
NASSAU COUNTY N.Y.	2,746	3,195	4,598	6,331	8,148	10,788	17,483
ROCKLAND COUNTY N.Y.	2,316	2,715	3,673	4,646	5,729	7,585	12,861
SUFFOLK COUNTY N.Y.	2,187	2,532	3,219	4,206	5,241	6,939	11,642
WESTCHESTER COUNTY N.Y.	2,594	3,368	5,007	7,029	9,272	12,276	19,457
NEW YORK CITY N.Y.	2,952	3,444	4,958	6,838	8,815	11,671	18,914
TOTAL NEW YORK STUDY REGION	2,886	3,342	4,722	6,391	8,090	10,590	16,947

Appendix Table 6:

TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	33,243,548A	48,716,478A	71,175,000	96,723,000	131,795,000	222,287,000
AGRICULTURE, FORESTRY AND FISHERIES	40,861D	49,162D	169,000	190,000	220,000	297,000
AGRICULTURE	60,033B	79,120B	139,000	151,000	169,000	215,000
FORESTRY AND FISHERIES	3,472E	2,213E	30,000	39,000	51,000	82,000
MINING	5,205E	6,080E	56,000	65,000	77,000	105,000
COAL	E	18E	3,000	4,000	5,000	8,000
CRUDE PETROLEUM AND NATURAL GAS	8,646A	14,812A	16,000	18,000	20,000	25,000
METAL	E	9E	8,000	9,000	9,000	10,000
NON METALLIC, EXCEPT FUELS	E	E	29,000	35,000	43,000	63,000
CONTRACT CONSTRUCTION	1,762,845A	2,395,364A	3,290,000	4,377,000	5,803,000	9,293,000
MANUFACTURING	9,424,831A	11,153,950A	14,873,000	18,624,000	23,496,000	35,228,000
FOOD AND KINDRED PRODUCTS	757,020A	758,521A	892,000	1,011,000	1,161,000	1,492,000
TEXTILE MILL PRODUCTS	45,011E	50,058E	394,000	452,000	523,000	677,000
APPAREL AND OTHER FABRIC PRODUCTS	1,589,077A	1,539,371A	1,838,000	2,032,000	2,272,000	2,746,000
PRINTING AND PUBLISHING	1,168,158A	1,515,486A	2,133,000	2,766,000	3,600,000	5,655,000
CHEMICAL AND ALLIED PRODUCTS	485,034A	664,800A	1,077,000	1,447,000	1,940,000	3,157,000
LUMBER PRODUCTS AND FURNITURE	17,897E	31,878E	304,000	369,000	451,000	641,000
MACHINERY, EXCLUDING ELECTRICAL	592,672A	894,253A	1,177,000	1,465,000	1,822,000	2,653,000
ELECTRICAL MACHINERY AND SUPPLIES	253,303D	453,335C	1,482,000	2,081,000	2,895,000	4,947,000
MOTOR VEHICLES AND EQUIPMENT	43,392C	102,061B	219,000	347,000	536,000	1,129,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	299,235C	330,052C	877,000	1,000,000	1,137,000	1,437,000
PAPER AND ALLIED PRODUCTS	55,501D	77,528D	418,000	536,000	687,000	1,055,000
PETROLEUM REFINING	136,777A	155,234A	196,000	224,000	259,000	335,000
PRIMARY METALS	217,389B	215,554C	412,000	444,000	487,000	587,000
FABRICATED METALS AND ORDNANCE	134,888E	196,931D	1,054,000	1,341,000	1,707,000	2,576,000
OTHER MANUFACTURING	1,036,988B	1,126,145B	2,401,000	3,110,000	4,019,000	6,140,000
TRANS., COMM. AND PUBLIC UTILITIES	2,909,266A	4,367,203A	6,111,000	8,020,000	10,562,000	16,847,000
RAILROAD TRANSPORTATION	124,206C	114,715C	225,000	218,000	209,000	189,000
TRUCKING AND WAREHOUSING	345,219A	550,051A	792,000	1,057,000	1,407,000	2,267,000
OTHER TRANSPORTATION AND SERVICES	13,161E	23,723E	2,532,000	3,148,000	3,931,000	5,742,000
COMMUNICATIONS	E	E	1,903,000	2,717,000	3,844,000	6,754,000
UTILITIES (ELEC., GAS, SANITARY)	39,598E	64,995E	659,000	880,000	1,172,000	1,895,000
WHOLESALE AND RETAIL TRADE	6,632,916A	8,781,734A	11,766,000	14,748,000	18,907,000	28,723,000
FINANCE, INSURANCE AND REAL ESTATE	3,108,944A	4,923,478A	7,565,000	10,386,000	14,183,000	23,507,000
SERVICES	5,741,401A	10,032,546A	16,990,000	25,310,000	37,079,000	69,234,000
LODGING PLACES AND PERSONAL SERVICES	686,771A	797,363A	971,000	1,122,000	1,309,000	1,719,000
BUSINESS AND REPAIR SERVICES	1,230,402A	2,447,617A	4,064,000	6,139,000	9,135,000	17,332,000
AMUSEMENT AND RECREATION SERVICES	85,372E	121,982D	802,000	1,055,000	1,386,000	2,208,000
PRIVATE HOUSEHOLDS	537,167A	411,950A	446,000	459,000	483,000	550,000
PROFESSIONAL SERVICES	1,021,797D	2,007,589D	10,707,000	16,537,000	24,765,000	47,424,000
GOVERNMENT	3,523,635A	6,870,853A	10,354,000	15,001,000	21,469,000	39,053,000
CIVILIAN GOVERNMENT	3,241,621A	6,590,379A	10,072,000	14,642,000	21,010,000	38,303,000
FEDERAL GOVERNMENT	854,975A	1,235,085A	1,751,000	2,465,000	3,386,000	6,294,000
STATE AND LOCAL GOVERNMENT	2,386,646A	5,355,292A	8,321,000	12,177,000	17,624,000	32,009,000
ARMED FORCES	282,011A	280,473A	282,000	359,000	459,000	750,000

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NOTE: PARTIAL DATA SHOWN FOR HISTORICAL YEARS TO AVOID DISCLOSURE OF CONFIDENTIAL INFORMATION
ALPHABETIC CODES SHOW THE GENERAL RELATIONSHIP OF DATA PRESENTED TO UNADJUSTED EARNINGS
A INDICATES FROM 80 TO 100 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
B INDICATES FROM 60 TO 80 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
C INDICATES FROM 40 TO 60 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
D INDICATES FROM 20 TO 40 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
E INDICATES FROM 0 TO 20 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
****
(S) INDICATES DATA TOO SMALL TO PROJECT

PREPARED BY:
REGIONAL ECONOMICS DIVISION
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPT. OF COMMERCE

Appendix Table 7:

TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	1,573,869	2,611,310	3,856,000	5,400,000	7,541,000	13,227,000
AGRICULTURE, FORESTRY AND FISHERIES	9,003	12,895	15,000	17,000	19,000	24,000
AGRICULTURE	(D)	(D)	15,000	17,000	19,000	24,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S)
MINING	792	803	1,000	1,000	2,000	2,000
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	1,000	1,000	2,000	2,000
CONTRACT CONSTRUCTION	108,444	165,570	240,000	335,000	463,000	794,000
MANUFACTURING	711,037	1,084,217	1,499,000	1,977,000	2,603,000	4,143,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	53,000	67,000	83,000	119,000
TEXTILE MILL PRODUCTS	(D)	(D)	12,000	14,000	15,000	19,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	35,000	40,000	45,000	57,000
PRINTING AND PUBLISHING	(D)	(D)	80,000	112,000	155,000	264,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	63,000	91,000	129,000	227,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	12,000	15,000	19,000	29,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	246,000	320,000	412,000	631,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	305,000	437,000	618,000	1,074,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	16,000	27,000	44,000	102,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	183,000	207,000	232,000	286,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	17,000	23,000	32,000	55,000
PETROLEUM REFINING	(D)	(D)	6,000	7,000	8,000	11,000
PRIMARY METALS	(D)	(D)	73,000	84,000	98,000	130,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	143,000	188,000	247,000	387,000
OTHER MANUFACTURING	(D)	(D)	255,000	345,000	464,000	753,000
TRANS., COMM. AND PUBLIC UTILITIES	68,927	109,205	154,000	211,000	288,000	485,000
RAILROAD TRANSPORTATION	(D)	(D)	10,000	10,000	10,000	10,000
TRUCKING AND WAREHOUSING	(D)	(D)	46,000	61,000	81,000	130,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	15,000	18,000	21,000	28,000
COMMUNICATIONS	(D)	(D)	42,000	61,000	88,000	157,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	42,000	61,000	88,000	160,000
WHOLESALE AND RETAIL TRADE	245,005	390,961	528,000	700,000	942,000	1,552,000
FINANCE, INSURANCE AND REAL ESTATE	65,987	107,308	188,000	275,000	397,000	727,000
SERVICES	256,699	509,027	864,000	1,332,000	2,007,000	3,927,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	47,000	59,000	72,000	102,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	159,000	255,000	397,000	803,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	28,000	43,000	64,000	119,000
PRIVATE HOUSEHOLDS	(D)	(D)	46,000	51,000	57,000	70,000
PROFESSIONAL SERVICES	(D)	(D)	584,000	924,000	1,417,000	2,832,000
GOVERNMENT	107,975	231,324	367,000	553,000	820,000	1,573,000
CIVILIAN GOVERNMENT	(D)	(D)	356,000	538,000	800,000	1,537,000
FEDERAL GOVERNMENT	(D)	(D)	40,000	57,000	79,000	149,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	316,000	481,000	720,000	1,388,000
ARMED FORCES	(D)	(D)	11,000	15,000	20,000	36,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

Appendix Table 8:

TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	155,974	301,865	462,000	692,000	1,027,000	1,986,000
AGRICULTURE, FORESTRY AND FISHERIES	(D)	(D)	4,000	5,000	5,000	6,000
AGRICULTURE	(D)	(D)	4,000	4,000	5,000	6,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S.
MINING	(D)	(D)	1,000	1,000	1,000	1,000
NON METALLIC, EXCEPT FUELS	(D)	(D)	1,000	1,000	1,000	1,000
CONTRACT CONSTRUCTION	11,421	15,273	38,000	55,000	80,000	151,000
MANUFACTURING	59,488	133,903	157,000	217,000	298,000	519,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	1,000	1,000	1,000	2,000
TEXTILE MILL PRODUCTS	(D)	(D)	4,000	4,000	4,000	4,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	3,000	3,000	4,000	6,000
PRINTING AND PUBLISHING	(D)	(D)	22,000	33,000	50,000	98,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	15,000	23,000	35,000	70,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	3,000	3,000	4,000	6,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	14,000	19,000	24,000	36,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	26,000	43,000	67,000	138,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	7,000	10,000	13,000	22,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	33,000	44,000	56,000	86,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	2,000	2,000	2,000	3,000
PETROLEUM REFINING	(D)	(D)	(S)	(S)	(S)	(S)
PRIMARY METALS	(D)	(D)	2,000	3,000	3,000	3,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	11,000	12,000	14,000	18,000
OTHER MANUFACTURING	(D)	(D)	16,000	18,000	20,000	25,000
TRANS., COMM. AND PUBLIC UTILITIES	6,054	11,320	23,000	36,000	55,000	112,000
RAILROAD TRANSPORTATION	(D)	(D)	(S)	(S)	(S)	(S)
TRUCKING AND WAREHOUSING	(D)	(D)	2,000	3,000	4,000	8,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	2,000	3,000	4,000	7,000
COMMUNICATIONS	(D)	(D)	8,000	14,000	24,000	52,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	11,000	16,000	24,000	45,000
WHOLESALE AND RETAIL TRADE	24,119	37,583	64,000	94,000	137,000	262,000
FINANCE, INSURANCE AND REAL ESTATE	5,389	8,515	14,000	22,000	33,000	64,000
SERVICES	20,139	43,236	82,000	138,000	221,000	474,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	6,000	7,000	8,000	12,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	5,000	8,000	13,000	27,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	1,000	2,000	3,000	5,000
PRIVATE HOUSEHOLDS	(D)	(D)	2,000	2,000	3,000	4,000
PROFESSIONAL SERVICES	(D)	(D)	69,000	119,000	195,000	426,000
GOVERNMENT	21,488	46,585	79,000	126,000	195,000	397,000
CIVILIAN GOVERNMENT	(D)	(D)	77,000	123,000	192,000	391,000
FEDERAL GOVERNMENT	(D)	(D)	3,000	4,000	6,000	11,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	73,000	118,000	186,000	381,000
ARMED FORCES	(D)	(D)	2,000	3,000	4,000	6,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

Appendix Table 9:
TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	1,541,256	2,327,090	3,525,000	4,984,000	7,063,000	12,833,000
AGRICULTURE, FORESTRY AND FISHERIES	11,599	11,574	12,000	12,000	13,000	17,000
AGRICULTURE	(D)	(D)	12,000	12,000	13,000	17,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S)
MINING	2,439	3,832	5,000	6,000	8,000	11,000
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	5,000	6,000	7,000	11,000
CONTRACT CONSTRUCTION	96,985	179,022	232,000	311,000	417,000	680,000
MANUFACTURING	690,103	819,693	1,166,000	1,509,000	1,964,000	3,107,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	34,000	43,000	54,000	81,000
TEXTILE MILL PRODUCTS	(D)	(D)	10,000	11,000	12,000	13,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	30,000	36,000	43,000	60,000
PRINTING AND PUBLISHING	(D)	(D)	73,000	110,000	164,000	321,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	70,000	98,000	136,000	235,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	16,000	21,000	28,000	45,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	113,000	143,000	180,000	263,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	87,000	132,000	196,000	377,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	6,000	9,000	13,000	24,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	60,000	73,000	87,000	121,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	24,000	32,000	41,000	63,000
PETROLEUM REFINING	(D)	(D)	3,000	5,000	6,000	10,000
PRIMARY METALS	(D)	(D)	119,000	121,000	126,000	139,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	258,000	339,000	445,000	702,000
OTHER MANUFACTURING	(D)	(D)	262,000	336,000	432,000	652,000
TRANS., COMM. AND PUBLIC UTILITIES	118,528	177,409	279,000	406,000	590,000	1,116,000
RAILROAD TRANSPORTATION	(D)	(D)	30,000	30,000	30,000	30,000
TRUCKING AND WAREHOUSING	(D)	(D)	64,000	96,000	141,000	266,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	25,000	35,000	49,000	87,000
COMMUNICATIONS	(D)	(D)	113,000	180,000	282,000	586,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	47,000	65,000	88,000	146,000
WHOLESALE AND RETAIL TRADE	237,366	369,512	498,000	653,000	871,000	1,408,000
FINANCE, INSURANCE AND REAL ESTATE	62,058	94,322	158,000	231,000	334,000	611,000
SERVICES	193,347	398,795	739,000	1,192,000	1,872,000	3,918,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	42,000	52,000	66,000	98,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	105,000	179,000	295,000	672,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	10,000	13,000	17,000	27,000
PRIVATE HOUSEHOLDS	(D)	(D)	14,000	15,000	17,000	21,000
PROFESSIONAL SERVICES	(D)	(D)	567,000	933,000	1,477,000	3,099,000
GOVERNMENT	128,831	272,930	436,000	664,000	994,000	1,967,000
CIVILIAN GOVERNMENT	(D)	(D)	425,000	649,000	974,000	1,934,000
FEDERAL GOVERNMENT	(D)	(D)	80,000	123,000	182,000	384,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	344,000	526,000	792,000	1,551,000
ARMED FORCES	(D)	(D)	12,000	15,000	20,000	32,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

AREA: NEW LONDON COUNTY CONN.

Appendix Table 10:

TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	410,328	639,162	907,000	1,293,000	1,846,000	3,439,000
AGRICULTURE, FORESTRY AND FISHERIES	(D)	(D)	10,000	10,000	11,000	15,000
AGRICULTURE	(D)	(D)	10,000	10,000	11,000	14,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S)
MINING	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	(S)	(S)	(S)	(S)
CONTRACT CONSTRUCTION	19,220	32,369	51,000	70,000	95,000	158,000
MANUFACTURING	180,664	238,217	295,000	385,000	504,000	812,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	5,000	6,000	8,000	14,000
TEXTILE MILL PRODUCTS	(D)	(D)	6,000	5,000	5,000	5,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	5,000	6,000	6,000	6,000
PRINTING AND PUBLISHING	(D)	(D)	12,000	19,000	30,000	64,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	44,000	66,000	97,000	183,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	3,000	5,000	6,000	11,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	18,000	22,000	28,000	41,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	9,000	13,000	20,000	39,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	(S)	(S)	(S)	(S)
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	120,000	139,000	161,000	213,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	23,000	31,000	42,000	69,000
PETROLEUM REFINING	(D)	(D)	(S)	(S)	(S)	(S)
PRIMARY METALS	(D)	(D)	10,000	12,000	14,000	18,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	25,000	37,000	53,000	94,000
OTHER MANUFACTURING	(D)	(D)	15,000	22,000	32,000	55,000
TRANS., COMM. AND PUBLIC UTILITIES	16,224	26,720	41,000	59,000	85,000	159,000
RAILROAD TRANSPORTATION	(D)	(D)	3,000	3,000	3,000	3,000
TRUCKING AND WAREHOUSING	(D)	(D)	11,000	15,000	22,000	41,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	9,000	14,000	21,000	40,000
COMMUNICATIONS	(D)	(D)	13,000	20,000	31,000	63,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	5,000	6,000	8,000	12,000
WHOLESALE AND RETAIL TRADE	50,938	79,901	118,000	161,000	223,000	383,000
FINANCE, INSURANCE AND REAL ESTATE	9,734	11,952	26,000	39,000	58,000	112,000
SERVICES	35,984	73,211	140,000	232,000	374,000	823,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	13,000	17,000	21,000	34,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	14,000	26,000	46,000	115,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	2,000	2,000	3,000	4,000
PRIVATE HOUSEHOLDS	(D)	(D)	4,000	5,000	6,000	8,000
PROFESSIONAL SERVICES	(D)	(D)	107,000	182,000	298,000	663,000
GOVERNMENT	91,845	166,554	226,000	337,000	495,000	976,000
CIVILIAN GOVERNMENT	(D)	(D)	161,000	252,000	386,000	794,000
FEDERAL GOVERNMENT	(D)	(D)	45,000	70,000	103,000	216,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	115,000	182,000	283,000	578,000
ARMED FORCES	(D)	(D)	66,000	85,000	109,000	181,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

PREPARED BY:
REGIONAL ECONOMICS DIVISION
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPT. OF COMMERCE

Appendix Table 11:
TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	3,681,427A	5,879,427A	8,750,000	12,369,000	17,476,000	31,486,000
AGRICULTURE, FORESTRY AND FISHERIES	20,602B	24,469B	42,000	43,000	49,000	62,000
AGRICULTURE	31,336A	38,377A	41,000	42,000	48,000	60,000
FORESTRY AND FISHERIES	371D	248D	1,000	1,000	1,000	1,000
MINING	3,231B	4,635A	7,000	9,000	11,000	15,000
CRUDE PETROLEUM AND NATURAL GAS	E	E	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	E	E	7,000	9,000	11,000	15,000
CONTRACT CONSTRUCTION	236,070A	392,234A	561,000	771,000	1,055,000	1,783,000
MANUFACTURING	1,641,292A	2,276,030A	3,117,000	4,088,000	5,369,000	8,581,000
FOOD AND KINDRED PRODUCTS	46,589A	68,988A	93,000	117,000	147,000	216,000
TEXTILE MILL PRODUCTS	36,531A	29,212A	32,000	33,000	36,000	41,000
APPAREL AND OTHER FABRIC PRODUCTS	67,424A	55,117A	73,000	84,000	98,000	128,000
PRINTING AND PUBLISHING	71,752A	113,952A	187,000	276,000	400,000	748,000
CHEMICAL AND ALLIED PRODUCTS	56,492B	93,190B	192,000	278,000	398,000	715,000
LUMBER PRODUCTS AND FURNITURE	11,235A	20,260A	34,000	45,000	58,000	90,000
MACHINERY, EXCLUDING ELECTRICAL	194,060A	285,050A	391,000	504,000	644,000	972,000
ELECTRICAL MACHINERY AND SUPPLIES	162,156A	254,454A	426,000	625,000	901,000	1,628,000
MOTOR VEHICLES AND EQUIPMENT	5,397A	33,786A	29,000	45,000	70,000	148,000
TRANSPORTATION EQUIP,, EXCL, MTR, VEHS,	152,298B	238,479B	396,000	462,000	537,000	706,000
PAPER AND ALLIED PRODUCTS	34,553A	43,100A	66,000	89,000	118,000	190,000
PETROLEUM REFINING	2,315B	5,244A	9,000	12,000	15,000	22,000
PRIMARY METALS	176,625A	172,026A	204,000	220,000	241,000	290,000
FABRICATED METALS AND ORDNANCE	131,228B	187,278C	436,000	576,000	759,000	1,200,000
OTHER MANUFACTURING	184,133B	191,176C	547,000	722,000	948,000	1,486,000
TRANS,, COMM, AND PUBLIC UTILITIES	209,733A	324,654A	497,000	712,000	1,018,000	1,872,000
RAILROAD TRANSPORTATION	47,660A	40,520A	43,000	44,000	44,000	44,000
TRUCKING AND WAREHOUSING	47,121A	80,482A	122,000	175,000	248,000	445,000
OTHER TRANSPORTATION AND SERVICES	E	E	50,000	69,000	94,000	162,000
COMMUNICATIONS	E	E	176,000	276,000	424,000	858,000
UTILITIES (ELEC,, GAS, SANITARY)	39,598A	64,995A	105,000	148,000	207,000	363,000
WHOLESALE AND RETAIL TRADE	557,428A	877,957A	1,208,000	1,608,000	2,174,000	3,605,000
FINANCE, INSURANCE AND REAL ESTATE	143,168A	222,097A	386,000	567,000	822,000	1,514,000
SERVICES	506,169A	1,024,269A	1,825,000	2,893,000	4,474,000	9,141,000
LODGING PLACES AND PERSONAL SERVICES	52,494A	81,448A	108,000	134,000	167,000	245,000
BUSINESS AND REPAIR SERVICES	56,428A	161,306A	284,000	467,000	750,000	1,618,000
AMUSEMENT AND RECREATION SERVICES	10,601C	17,609B	41,000	61,000	87,000	155,000
PRIVATE HOUSEHOLDS	64,466A	49,561A	66,000	73,000	82,000	102,000
PROFESSIONAL SERVICES	189,029B	413,149C	1,326,000	2,158,000	3,388,000	7,021,000
GOVERNMENT	350,139A	717,393A	1,109,000	1,679,000	2,504,000	4,912,000
CIVILIAN GOVERNMENT	282,635A	625,004A	1,018,000	1,561,000	2,351,000	4,657,000
FEDERAL GOVERNMENT	59,253A	121,675A	169,000	254,000	370,000	760,000
STATE AND LOCAL GOVERNMENT	223,382A	503,329A	849,000	1,307,000	1,981,000	3,897,000
ARMED FORCES	67,503A	92,388A	91,000	118,000	153,000	255,000

NOTE: PARTIAL DATA SHOWN FOR HISTORICAL YEARS TO AVOID DISCLOSURE OF CONFIDENTIAL INFORMATION
ALPHABETIC CODES SHOW THE GENERAL RELATIONSHIP OF DATA PRESENTED TO UNADJUSTED EARNINGS
A INDICATES FROM 80 TO 100 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
B INDICATES FROM 60 TO 80 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
C INDICATES FROM 40 TO 60 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
D INDICATES FROM 20 TO 40 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
E INDICATES FROM 0 TO 20 PERCENT OF UNADJUSTED EARNINGS ESTIMATE

(S) INDICATES DATA TOO SMALL TO PROJECT

PREPARED BY:
REGIONAL ECONOMICS DIVISION
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPT. OF COMMERCE

Appendix Table 12:
TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	2,689,982	4,383,395	6,438,000	8,777,000	11,984,000	20,242,000
AGRICULTURE, FORESTRY AND FISHERIES	(D)	(D)	25,000	28,000	31,000	40,000
AGRICULTURE	(D)	(D)	25,000	27,000	30,000	39,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S)
MINING	(D)	(D)	1,000	1,000	1,000	1,000
COAL	(D)	(D)	(S)	(S)	(S)	(S)
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	(S)	(S)	(S)	(S)
METAL	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	1,000	1,000	1,000	1,000
CONTRACT CONSTRUCTION	207,941	282,999	407,000	537,000	708,000	1,119,000
MANUFACTURING	715,658	971,334	1,309,000	1,639,000	2,063,000	3,090,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	15,000	17,000	19,000	24,000
TEXTILE MILL PRODUCTS	(D)	(D)	13,000	15,000	18,000	23,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	26,000	29,000	33,000	39,000
PRINTING AND PUBLISHING	(D)	(D)	113,000	145,000	186,000	285,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	35,000	47,000	62,000	98,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	27,000	32,000	39,000	54,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	105,000	129,000	158,000	226,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	208,000	286,000	392,000	653,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	45,000	72,000	111,000	234,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	314,000	351,000	392,000	478,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	31,000	40,000	50,000	77,000
PETROLEUM REFINING	(D)	(D)	3,000	4,000	4,000	6,000
PRIMARY METALS	(D)	(D)	14,000	15,000	17,000	20,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	94,000	116,000	144,000	209,000
OTHER MANUFACTURING	(D)	(D)	265,000	341,000	438,000	664,000
TRANS., COMM, AND PUBLIC UTILITIES	124,335	221,328	296,000	388,000	509,000	806,000
RAILROAD TRANSPORTATION	(D)	(D)	22,000	21,000	20,000	17,000
TRUCKING AND WAREHOUSING	(D)	(D)	61,000	80,000	105,000	165,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	51,000	64,000	80,000	116,000
COMMUNICATIONS	(D)	(D)	90,000	128,000	179,000	308,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	72,000	95,000	126,000	200,000
WHOLESALE AND RETAIL TRADE	464,844	849,480	1,099,000	1,368,000	1,742,000	2,614,000
FINANCE, INSURANCE AND REAL ESTATE	147,173	247,037	365,000	499,000	678,000	1,117,000
SERVICES	618,818	1,062,179	1,829,000	2,717,000	3,964,000	7,336,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	74,000	85,000	98,000	126,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	278,000	417,000	616,000	1,155,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	73,000	95,000	124,000	196,000
PRIVATE HOUSEHOLDS	(D)	(D)	60,000	61,000	64,000	71,000
PROFESSIONAL SERVICES	(D)	(D)	1,344,000	2,060,000	3,062,000	5,787,000
GOVERNMENT	394,432	730,544	1,108,000	1,601,000	2,288,000	4,119,000
CIVILIAN GOVERNMENT	(D)	(D)	1,097,000	1,588,000	2,271,000	4,091,000
FEDERAL GOVERNMENT	(D)	(D)	134,000	187,000	256,000	469,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	963,000	1,400,000	2,015,000	3,622,000
ARMED FORCES	(D)	(D)	11,000	14,000	17,000	28,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

AREA: ROCKLAND COUNTY N.Y.

Appendix Table 13:
TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	257,085	493,670	709,000	969,000	1,324,000	2,233,000
AGRICULTURE, FORESTRY AND FISHERIES	(D)	(D)	4,000	4,000	5,000	6,000
AGRICULTURE	(D)	(D)	4,000	4,000	5,000	6,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S)
MINING	(D)	(D)	7,000	9,000	11,000	16,000
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	7,000	9,000	11,000	16,000
CONTRACT CONSTRUCTION	14,115	41,645	55,000	73,000	96,000	152,000
MANUFACTURING	87,675	128,091	172,000	221,000	283,000	433,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	1,000	2,000	2,000	2,000
TEXTILE MILL PRODUCTS	(D)	(D)	6,000	7,000	9,000	11,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	3,000	4,000	4,000	5,000
PRINTING AND PUBLISHING	(D)	(D)	7,000	9,000	11,000	17,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	74,000	98,000	129,000	205,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	3,000	3,000	4,000	5,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	9,000	12,000	14,000	20,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	9,000	13,000	18,000	30,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	(S)	(S)	(S)	(S)
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	(S)	(S)	(S)	(S)
PAPER AND ALLIED PRODUCTS	(D)	(D)	20,000	26,000	33,000	50,000
PETROLEUM REFINING	(D)	(D)	(S)	(S)	(S)	(S)
PRIMARY METALS	(D)	(D)	6,000	6,000	7,000	8,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	14,000	17,000	21,000	30,000
OTHER MANUFACTURING	(D)	(D)	19,000	24,000	31,000	48,000
TRANS., COMM., AND PUBLIC UTILITIES	14,842	30,866	42,000	55,000	73,000	117,000
RAILROAD TRANSPORTATION	(D)	(D)	2,000	2,000	2,000	2,000
TRUCKING AND WAREHOUSING	(D)	(D)	7,000	9,000	11,000	18,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	4,000	5,000	7,000	10,000
COMMUNICATIONS	(D)	(D)	12,000	17,000	24,000	41,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	17,000	22,000	30,000	47,000
WHOLESALE AND RETAIL TRADE	33,585	72,995	88,000	110,000	140,000	210,000
FINANCE, INSURANCE AND REAL ESTATE	8,930	16,790	24,000	33,000	45,000	75,000
SERVICES	42,840	93,228	159,000	238,000	348,000	645,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	9,000	10,000	12,000	16,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	17,000	26,000	38,000	72,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	4,000	5,000	6,000	9,000
PRIVATE HOUSEHOLDS	(D)	(D)	3,000	3,000	3,000	4,000
PROFESSIONAL SERVICES	(D)	(D)	126,000	194,000	288,000	545,000
GOVERNMENT	48,282	102,859	156,000	226,000	323,000	580,000
CIVILIAN GOVERNMENT	(D)	(D)	152,000	220,000	316,000	568,000
FEDERAL GOVERNMENT	(D)	(D)	9,000	13,000	17,000	32,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	143,000	207,000	298,000	536,000
ARMED FORCES	(D)	(D)	4,000	6,000	7,000	12,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

Appendix Table 14:
TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	1,070,293	1,936,263	2,720,000	3,698,000	5,039,000	8,487,000
AGRICULTURE, FORESTRY AND FISHERIES	20,259	24,693	33,000	36,000	41,000	54,000
AGRICULTURE	(D)	(D)	30,000	33,000	37,000	47,000
FORESTRY AND FISHERIES	(D)	(D)	2,000	3,000	4,000	7,000
MINING	1,974	1,445	3,000	3,000	4,000	6,000
COAL	(D)	(D)	(S)	(S)	(S)	(S)
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	(S)	(S)	(S)	(S)
METAL	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	2,000	3,000	4,000	5,000
CONTRACT CONSTRUCTION	94,108	155,723	213,000	281,000	370,000	585,000
MANUFACTURING	286,565	397,210	491,000	615,000	774,000	1,160,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	22,000	24,000	27,000	34,000
TEXTILE MILL PRODUCTS	(D)	(D)	9,000	11,000	13,000	16,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	37,000	41,000	46,000	55,000
PRINTING AND PUBLISHING	(D)	(D)	24,000	30,000	39,000	60,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	11,000	15,000	19,000	31,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	10,000	12,000	15,000	21,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	31,000	38,000	47,000	67,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	121,000	167,000	228,000	380,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	14,000	22,000	33,000	70,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	90,000	101,000	113,000	137,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	14,000	18,000	22,000	34,000
PETROLEUM REFINING	(D)	(D)	1,000	1,000	2,000	2,000
PRIMARY METALS	(D)	(D)	5,000	5,000	6,000	7,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	39,000	48,000	59,000	86,000
OTHER MANUFACTURING	(D)	(D)	64,000	82,000	105,000	160,000
TRANS., COMM. AND PUBLIC UTILITIES	59,219	120,543	157,000	206,000	272,000	436,000
RAILROAD TRANSPORTATION	(D)	(D)	13,000	13,000	12,000	11,000
TRUCKING AND WAREHOUSING	(D)	(D)	27,000	35,000	46,000	73,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	22,000	27,000	34,000	50,000
COMMUNICATIONS	(D)	(D)	65,000	91,000	128,000	220,000
UTILITIES (ELEC., GAS, SANITARY)	(D)	(D)	30,000	40,000	53,000	83,000
WHOLESALE AND RETAIL TRADE	169,942	374,767	463,000	576,000	734,000	1,101,000
FINANCE, INSURANCE AND REAL ESTATE	45,041	78,621	112,000	154,000	209,000	344,000
SERVICES	163,402	360,774	593,000	879,000	1,282,000	2,369,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	32,000	37,000	43,000	55,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	146,000	218,000	323,000	605,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	20,000	26,000	34,000	53,000
PRIVATE HOUSEHOLDS	(D)	(D)	14,000	15,000	15,000	17,000
PROFESSIONAL SERVICES	(D)	(D)	380,000	583,000	867,000	1,638,000
GOVERNMENT	229,782	422,488	657,000	948,000	1,353,000	2,431,000
CIVILIAN GOVERNMENT	(D)	(D)	638,000	924,000	1,322,000	2,381,000
FEDERAL GOVERNMENT	(D)	(D)	71,000	100,000	136,000	250,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	566,000	824,000	1,186,000	2,131,000
ARMED FORCES	(D)	(D)	19,000	24,000	31,000	50,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

Appendix Table 15:

TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	1,827,906	3,134,800	4,557,000	6,219,000	8,500,000	14,403,000
AGRICULTURE, FORESTRY AND FISHERIES	(D)	(D)	19,000	21,000	24,000	31,000
AGRICULTURE	(D)	(D)	19,000	21,000	24,000	30,000
FORESTRY AND FISHERIES	(D)	(D)	(S)	(S)	(S)	(S)
MINING	(D)	(D)	1,000	2,000	2,000	3,000
COAL	(D)	(D)	(S)	(S)	(S)	(S)
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	(S)	(S)	(S)	(S)
METAL	(D)	(D)	(S)	(S)	(S)	(S)
NON METALLIC, EXCEPT FUELS	(D)	(D)	1,000	1,000	2,000	2,000
CONTRACT CONSTRUCTION	133,584	230,624	316,000	417,000	549,000	869,000
MANUFACTURING	477,859	811,540	1,038,000	1,309,000	1,663,000	2,546,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	118,000	132,000	149,000	188,000
TEXTILE MILL PRODUCTS	(D)	(D)	7,000	8,000	10,000	13,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	38,000	42,000	47,000	56,000
PRINTING AND PUBLISHING	(D)	(D)	87,000	111,000	143,000	219,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	81,000	107,000	141,000	223,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	14,000	17,000	21,000	29,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	298,000	365,000	447,000	638,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	95,000	132,000	180,000	300,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	74,000	117,000	181,000	381,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	16,000	18,000	21,000	25,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	10,000	13,000	16,000	24,000
PETROLEUM REFINING	(D)	(D)	4,000	5,000	6,000	8,000
PRIMARY METALS	(D)	(D)	32,000	35,000	38,000	46,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	50,000	61,000	76,000	111,000
OTHER MANUFACTURING	(D)	(D)	114,000	146,000	188,000	285,000
TRANS., COMM. AND PUBLIC UTILITIES	108,473	194,453	263,000	344,000	453,000	723,000
RAILROAD TRANSPORTATION	(D)	(D)	32,000	31,000	29,000	26,000
TRUCKING AND WAREHOUSING	(D)	(D)	47,000	62,000	82,000	129,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	33,000	41,000	52,000	75,000
COMMUNICATIONS	(D)	(D)	121,000	171,000	239,000	413,000
UTILITIES (ELEC,, GAS, SANITARY)	(D)	(D)	29,000	39,000	51,000	81,000
WHOLESALE AND RETAIL TRADE	298,907	500,619	655,000	815,000	1,038,000	1,558,000
FINANCE, INSURANCE AND REAL ESTATE	107,418	153,254	231,000	316,000	430,000	709,000
SERVICES	482,266	818,554	1,414,000	2,100,000	3,063,000	5,667,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	55,000	63,000	72,000	94,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	151,000	227,000	335,000	628,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	48,000	63,000	82,000	130,000
PRIVATE HOUSEHOLDS	(D)	(D)	57,000	58,000	60,000	67,000
PROFESSIONAL SERVICES	(D)	(D)	1,102,000	1,690,000	2,512,000	4,748,000
GOVERNMENT	208,588	409,014	620,000	895,000	1,277,000	2,298,000
CIVILIAN GOVERNMENT	(D)	(D)	609,000	881,000	1,260,000	2,270,000
FEDERAL GOVERNMENT	(D)	(D)	80,000	112,000	153,000	280,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	529,000	770,000	1,108,000	1,990,000
ARMED FORCES	(D)	(D)	11,000	14,000	17,000	28,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
      (S) INDICATES DATA TOO SMALL TO PROJECT

Appendix Table 16:

TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	23,716,855	32,888,923	48,001,000	64,690,000	87,472,000	145,437,000
AGRICULTURE, FORESTRY AND FISHERIES	(D)	(D)	47,000	57,000	70,000	105,000
AGRICULTURE	(D)	(D)	20,000	23,000	25,000	32,000
FORESTRY AND FISHERIES	(D)	(D)	26,000	34,000	45,000	72,000
MINING	(D)	(D)	37,000	42,000	48,000	64,000
COAL	(D)	(D)	3,000	4,000	5,000	8,000
CRUDE PETROLEUM AND NATURAL GAS	(D)	(D)	16,000	17,000	19,000	24,000
METAL	(D)	(D)	8,000	9,000	9,000	10,000
NON METALLIC, EXCEPT FUELS	(D)	(D)	10,000	13,000	16,000	23,000
CONTRACT CONSTRUCTION	1,077,027	1,292,139	1,739,000	2,293,000	3,026,000	4,785,000
MANUFACTURING	6,215,782	6,574,745	8,745,000	10,753,000	13,342,000	19,418,000
FOOD AND KINDRED PRODUCTS	(D)	(D)	643,000	720,000	817,000	1,028,000
TEXTILE MILL PRODUCTS	(D)	(D)	326,000	377,000	439,000	572,000
APPAREL AND OTHER FABRIC PRODUCTS	(D)	(D)	1,660,000	1,832,000	2,044,000	2,462,000
PRINTING AND PUBLISHING	(D)	(D)	1,716,000	2,196,000	2,821,000	4,327,000
CHEMICAL AND ALLIED PRODUCTS	(D)	(D)	683,000	903,000	1,191,000	1,885,000
LUMBER PRODUCTS AND FURNITURE	(D)	(D)	216,000	260,000	315,000	441,000
MACHINERY, EXCLUDING ELECTRICAL	(D)	(D)	341,000	418,000	512,000	731,000
ELECTRICAL MACHINERY AND SUPPLIES	(D)	(D)	622,000	859,000	1,175,000	1,957,000
MOTOR VEHICLES AND EQUIPMENT	(D)	(D)	57,000	90,000	140,000	294,000
TRANSPORTATION EQUIP., EXCL. MTR. VEHS.	(D)	(D)	59,000	66,000	74,000	90,000
PAPER AND ALLIED PRODUCTS	(D)	(D)	277,000	351,000	448,000	681,000
PETROLEUM REFINING	(D)	(D)	178,000	202,000	232,000	298,000
PRIMARY METALS	(D)	(D)	151,000	163,000	180,000	217,000
FABRICATED METALS AND ORDNANCE	(D)	(D)	422,000	522,000	647,000	939,000
OTHER MANUFACTURING	(D)	(D)	1,393,000	1,795,000	2,308,000	3,497,000
TRANS., COMM. AND PUBLIC UTILITIES	2,392,664	3,476,359	4,856,000	6,315,000	8,236,000	12,892,000
RAILROAD TRANSPORTATION	(D)	(D)	113,000	108,000	102,000	90,000
TRUCKING AND WAREHOUSING	(D)	(D)	529,000	696,000	914,000	1,438,000
OTHER TRANSPORTATION AND SERVICES	(D)	(D)	2,370,000	2,941,000	3,665,000	5,330,000
COMMUNICATIONS	(D)	(D)	1,439,000	2,034,000	2,849,000	4,913,000
UTILITIES (ELEC., GAS. SANITARY)	(D)	(D)	405,000	536,000	706,000	1,121,000
WHOLESALE AND RETAIL TRADE	5,108,210	6,105,916	8,253,000	10,272,000	13,080,000	19,634,000
FINANCE, INSURANCE AND REAL ESTATE	2,657,214	4,205,679	6,447,000	8,817,000	11,997,000	19,748,000
SERVICES	3,927,906	6,673,542	11,171,000	16,483,000	23,948,000	44,076,000
LODGING PLACES AND PERSONAL SERVICES	(D)	(D)	693,000	793,000	917,000	1,184,000
BUSINESS AND REPAIR SERVICES	(D)	(D)	3,189,000	4,784,000	7,072,000	13,254,000
AMUSEMENT AND RECREATION SERVICES	(D)	(D)	617,000	806,000	1,053,000	1,664,000
PRIVATE HOUSEHOLDS	(D)	(D)	245,000	249,000	259,000	289,000
PROFESSIONAL SERVICES	(D)	(D)	6,428,000	9,853,000	14,648,000	27,685,000
GOVERNMENT	2,292,412	4,488,555	6,705,000	9,652,000	13,724,000	24,713,000
CIVILIAN GOVERNMENT	(D)	(D)	6,559,000	9,468,000	13,490,000	24,335,000
FEDERAL GOVERNMENT	(D)	(D)	1,287,000	1,799,000	2,454,000	4,503,000
STATE AND LOCAL GOVERNMENT	(D)	(D)	5,272,000	7,669,000	11,036,000	19,832,000
ARMED FORCES	(D)	(D)	146,000	185,000	234,000	378,000

NOTE: (D) INDICATES DATA NOT SHOWN TO AVOID DISCLOSURE
(S) INDICATES DATA TOO SMALL TO PROJECT

Appendix Table 17:
TOTAL EARNINGS AND EARNINGS BY INDUSTRY FOR THE LONG ISLAND SOUND STUDY REGION
HISTORICAL AND PROJECTED, SELECTED YEARS, 1959-2020

IN THOUSANDS OF CONSTANT 1967 DOLLARS

INDUSTRY	1959	1970	1980	1990	2000	2020
TOTAL EARNINGS	29,562,121A	42,837,051A	62,424,000	84,353,000	114,319,000	190,802,000
AGRICULTURE, FORESTRY AND FISHERIES	20,259D	24,693D	127,000	147,000	172,000	235,000
AGRICULTURE	28,697C	40,743C	98,000	108,000	122,000	155,000
FORESTRY AND FISHERIES	3,101E	1,965E	29,000	38,000	50,000	81,000
MINING	1,974E	1,445E	49,000	56,000	66,000	90,000
COAL	E	18E	3,000	4,000	5,000	8,000
CRUDE PETROLEUM AND NATURAL GAS	8,646A	14,812A	16,000	18,000	20,000	25,000
METAL	E	9E	8,000	9,000	9,000	10,000
NON METALLIC, EXCEPT FUELS	E	E	22,000	26,000	33,000	47,000
CONTRACT CONSTRUCTION	1,526,775A	2,003,130A	2,730,000	3,606,000	4,748,000	7,510,000
MANUFACTURING	7,783,539A	8,882,920A	11,756,000	14,536,000	18,126,000	26,647,000
FOOD AND KINDRED PRODUCTS	710,431A	689,533A	799,000	894,000	1,014,000	1,276,000
TEXTILE MILL PRODUCTS	8,480E	20,846E	362,000	419,000	487,000	636,000
APPAREL AND OTHER FABRIC PRODUCTS	1,520,653A	1,484,254A	1,765,000	1,947,000	2,173,000	2,618,000
PRINTING AND PUBLISHING	1,096,406A	1,401,534A	1,946,000	2,491,000	3,200,000	4,908,000
CHEMICAL AND ALLIED PRODUCTS	428,542A	571,610A	885,000	1,169,000	1,542,000	2,442,000
LUMBER PRODUCTS AND FURNITURE	6,662E	10,618E	270,000	325,000	393,000	550,000
MACHINERY, EXCLUDING ELECTRICAL	398,612A	609,203A	785,000	961,000	1,178,000	1,682,000
ELECTRICAL MACHINERY AND SUPPLIES	91,147E	198,881D	1,055,000	1,456,000	1,994,000	3,319,000
MOTOR VEHICLES AND EQUIPMENT	37,995C	63,275B	190,000	301,000	466,000	981,000
TRANSPORTATION EQUIP, EXCL. MTR. VEHS.	146,937C	91,573D	480,000	537,000	599,000	731,000
PAPER AND ALLIED PRODUCTS	20,948E	34,428E	352,000	447,000	569,000	865,000
PETROLEUM REFINING	134,462A	149,990A	187,000	212,000	244,000	313,000
PRIMARY METALS	40,764D	43,528D	208,000	224,000	246,000	297,000
FABRICATED METALS AND ORDNANCE	3,660E	9,653E	618,000	764,000	949,000	1,375,000
OTHER MANUFACTURING	852,855B	934,969B	1,854,000	2,388,000	3,071,000	4,654,000
TRANS., COMM, AND PUBLIC UTILITIES	2,699,533A	4,042,549A	5,614,000	7,308,000	9,544,000	14,975,000
RAILROAD TRANSPORTATION	76,546D	74,195D	181,000	174,000	165,000	146,000
TRUCKING AND WAREHOUSING	298,098A	469,569A	670,000	882,000	1,158,000	1,822,000
OTHER TRANSPORTATION AND SERVICES	13,161E	23,723E	2,482,000	3,079,000	3,837,000	5,580,000
COMMUNICATIONS	E	E	1,727,000	2,441,000	3,419,000	5,896,000
UTILITIES (ELEC., GAS, SANITARY)	E	E	554,000	732,000	965,000	1,532,000
WHOLESALE AND RETAIL TRADE	6,075,488A	7,903,777A	10,558,000	13,140,000	16,733,000	25,117,000
FINANCE, INSURANCE AND REAL ESTATE	2,965,776A	4,701,381A	7,180,000	9,820,000	13,361,000	21,993,000
SERVICES	5,235,232A	9,008,277A	15,165,000	22,417,000	32,604,000	50,093,000
LODGING PLACES AND PERSONAL SERVICES	634,277A	715,915A	863,000	987,000	1,142,000	1,475,000
BUSINESS AND REPAIR SERVICES	1,173,974A	2,286,311A	3,760,000	5,671,000	8,384,000	15,714,000
AMUSEMENT AND RECREATION SERVICES	74,771E	104,373E	761,000	994,000	1,300,000	2,053,000
PRIVATE HOUSEHOLDS	472,701A	362,389A	380,000	385,000	401,000	448,000
PROFESSIONAL SERVICES	832,768D	1,594,440D	9,381,000	14,379,000	21,377,000	40,403,000
GOVERNMENT	3,173,496A	6,153,460A	9,245,000	13,323,000	18,965,000	34,141,000
CIVILIAN GOVERNMENT	2,958,986A	5,965,375A	9,054,000	13,081,000	18,659,000	33,646,000
FEDERAL GOVERNMENT	795,722A	1,113,410A	1,582,000	2,211,000	3,016,000	5,534,000
STATE AND LOCAL GOVERNMENT	2,163,264A	4,851,963A	7,472,000	10,870,000	15,643,000	28,112,000
ARMED FORCES	214,508A	188,085A	191,000	242,000	306,000	495,000

NOTE: PARTIAL DATA SHOWN FOR HISTORICAL YEARS TO AVOID DISCLOSURE OF CONFIDENTIAL INFORMATION
ALPHABETIC CODES SHOW THE GENERAL RELATIONSHIP OF DATA PRESENTED TO UNADJUSTED EARNINGS
A INDICATES FROM 80 TO 100 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
B INDICATES FROM 60 TO 80 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
C INDICATES FROM 40 TO 60 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
D INDICATES FROM 20 TO 40 PERCENT OF UNADJUSTED EARNINGS ESTIMATE
E INDICATES FROM 0 TO 20 PERCENT OF UNADJUSTED EARNINGS ESTIMATE

(S) INDICATES DATA TOO SMALL TO PROJECT

PREPARED BY:
REGIONAL ECONOMICS DIVISION
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPT. OF COMMERCE

APPENDIX C
ALTERNATIVE PROJECTIONS

C.O INTRODUCTION

As discussed previously, the OBERS projections were selected for use as the baseline projection because of their consistency with national projections and because they provide a consistent set of projections for the entire Long Island Sound Region. However, numerous planning bodies have also developed population projections for all or parts of the Long Island Sound region, using a variety of methods and assumptions. Some are based on economic projections which first project economic activity in an area, and relate it to employment and population. Others are demographic projections based on the age cohort, survival, and migration data of the current population. Some projections make explicit assumptions about allowable population densities and the environmental holding capacities of an area. Others do not.

C.1 New York Office of Planning Services

The New York State Office of Planning Services demographic projections of LISS-area political units represent only part of a Statewide set of projections by County and planning region. Since the OPS projections are used by a large number and variety of client groups within the State planning and research community, the needs of these clients determined the form of the product and, hence, the projection methodology. Specifically, for reasons of demand as well as conceptual rigor. OPS projections are of the cohort-component type, and the format is projections by sex and five-year age groups for five-year time increments. The OPS staff has taken great pains to see that the projected age detail is as realistic as possible, and methodological statements on computation procedures and the format of the various transition rates will be furnished to the interested reader on request.

In general, the county was the basic analytical element of the 1972-series OPS projections, although attention was paid to the behavior of regional aggregation of counties. Historical data on fertility and net migration were collected for each of the 62 counties in the State. Recent economic data were also examined and OPS District Office personnel were consulted regarding local development trends. A scenario of anticipated fertility and net migration was prepared following evaluation of this information. Provisional projections were computed and sent to State agency research directors and to regional planning directors for comments. The final, official projections were processed after these comments were evaluated.

Minor Civil Division (MCD) projections by OPS are considered to be unofficial. OPS encourages local analysts to make MCD projections provided that MCD county aggregates agree with the OPS county totals. Due to the fact that many local agencies do not make MCD projections, OPS prepared its own set of such projections for use in the absence of locally-generated projections.

The OPS MCD projections represent judgmental trending of MCD shares of total county population. Empirical MCD shares were obtained from the 1940, 1950, 1960, and 1970 censuses, and first and second differences were computed in order to provide a basis for trending. As an aid to the judgmental input, official county and regional plans were consulted in order to obtain a local perspective on anticipated development patterns.

The OPS cohort model was run only to the year 2000. Projections for 2020 are extrapolations.

OPS projections are reviewed annually on the basis of post-censal measures of demographic and economic changes. Also, the methodology is updated where basic research conducted by OPS indicates improvements are justified. The OPS projections presented in table 18 are outdated, and are likely to be revised in the near future.

C.2 Nassau-Suffolk County Regional Planning Commission

The approach in these projections was to relate population growth estimates to land availability. An advantage claimed for this approach is that it allowed projections to be made according to specified geographic areas. This approach assumes that the extension of present trends – modified by foreseeable construction projects and potential zone changes – can be applied to the growth possibly according to the actual available land.

Based on surveys, the amounts of vacant land zoned for residential use in towns and cities were compiled. Estimates were then made of the number of additional houses that could be built in conformance with legally prescribed densities. Multiplying the number of new houses by a factor representing the average number of persons per home, yielded an estimate of the projected population when, and if, all of the land were to be developed. By continuing the population counts as of the date of the land use surveys (1966-1967) with the number of potential new residents the staff derived a figure for the "saturation" population in each town or city.

But, saturation figures are not projections since they merely indicate how many people might someday occupy a specific area should present residential zoning controls remain unchanged. Saturation figures say little respecting the timing of growth, even less respecting local responsiveness to metropolitan and regional developmental pressures.

A second step involved the study of annual population growth in the several municipalities over the past ten years. The annual and five year increments when reviewed in conjunction with the saturation figures suggested the probable pattern and volume of growth for the first, and in some instances for the second projection period as well.

To aid in the further refinement and extension of the small area projections the staff undertook a third step, the listing of general trends and special projects or events likely to affect the amount and direction of population growth in Nassau and Suffolk Counties. In the case of important

Appendix Table 18: OPS County and Sub-County Projections
Long Island Sound Study Area
New York Portion
1970-2020

Area	1970	1980	1990	2000	2010	2020
New York City	7,895,563	7,917,130	7,861,133	7,794,532	7,732,100	7,675,600
Bronx	1,471,701	1,458,327	1,423,668	1,400,710	1,386,700	1,379,800
Kings	2,602,012	2,544,746	2,458,886	2,399,868	2,351,900	2,316,600
New York	1,539,235	1,456,674	1,422,044	1,408,208	1,401,200	1,394,600
Queens	1,987,174	2,069,451	2,095,272	2,078,911	2,060,200	2,039,600
Richmond	295,443	387,922	461,263	506,835	532,100	545,400
Nassau	1,428,838	1,528,231	1,649,572	1,690,995	1,758,600	1,767,400
Glen Cove City	25,770	25,902	26,314	25,314	26,379	26,511
Hampstead Town	801,592	850,203	912,775	931,567	967,230	972,070
Long Beach City	33,127	35,044	37,826	38,815	40,448	40,650
North Hempstead Town	235,007	251,404	269,721	275,082	286,652	288,086
Oyster Bay Town	333,342	365,678	402,936	420,217	437,891	440,083
Suffolk	1,127,030	1,515,190	1,978,291	2,379,006	2,616,900	2,813,200
Babylon	203,570	243,160	281,199	327,233	361,132	388,222
Brookhaven	245,260	395,136	625,767	800,169	879,278	945,235
East Hampton	10,980	13,677	19,802	26,274	28,788	30,945
Huntington	200,172	252,279	310,903	353,507	389,918	419,167
Islip	278,880	352,583	400,015	456,215	502,445	540,134
Riverhead	18,909	25,835	39,605	52,548	57,572	61,890
Shelter Island	1,644	1,519	3,960	7,165	7,851	8,440
Smithtown	114,657	167,173	207,928	238,856	261,690	281,320
Southampton	35,980	44,072	59,408	76,434	83,741	92,022
Southold	16,804	19,756	29,704	40,605	44,487	47,824
Westchester	894,104	989,295	1,093,956	1,193,078	1,276,600	1,340,400
edford Town	18,329	22,551	30,030	39,769	42,128	44,233
Cortland Town	34,393	42,160	52,533	63,631	67,660	71,041
Eastchester Town	36,660	39,219	41,828	43,178	45,958	48,254
Greenburgh Town	85,746	102,950	120,121	132,944	142,979	150,125
Harrison Town	21,544	23,531	25,740	27,270	29,362	30,829
Lewisboro Town	6,610	9,804	15,015	21,589	22,979	24,127
Mamaroneck Town	31,243	33,336	35,393	36,360	38,298	40,212
Mt. Pleasant Town	38,535	42,160	46,118	48,859	52,341	54,956
Mt. Vernon City	72,778	68,633	66,496	64,767	68,936	72,382
New Castle Town	19,837	25,492	33,247	42,042	44,681	46,914
New Rochelle Town	75,385	74,516	72,930	72,721	77,873	81,764
North Castle Town	9,591	14,707	21,450	28,406	20,638	32,170
North Salem Town	3,828	5,882	9,652	14,771	15,319	16,085
Ossining Town	32,397	39,219	47,190	54,541	58,724	61,658
Peekskill City	19,283	20,590	21,450	21,539	22,978	24,127
Pelham Town	15,933	14,707	15,015	14,771	15,319	16,035
Poundridge Town	3,792	4,902	8,580	12,499	12,766	13,404
Rye City	15,869	17,648	18,232	19,316	20,426	21,446
Rye Town	43,234	47,063	50,408	52,268	56,170	58,978
Scarsdale Town	19,229	20,590	21,450	22,725	24,255	25,468
Somers Town	9,402	15,687	22,522	29,543	31,915	33,510
White Plains City	50,125	49,024	48,263	46,587	49,787	52,276
Yonkers City	204,297	213,744	214,503	212,483	229,788	241,272
Yorktown Town	28,064	41,180	55,770	70,449	75,319	79,084

Note : 2010, 2020 projections unpublished
2010, 2020 sub-county projections reflect 2000 sub-county shares

Date: June 1973, tabulated by DEC

projects or events, further identification of the area or areas of maximum impact and the approximate time of maximum impact were made.

The total town and city projects that emerged from the joint consideration of land capacity, recent growth experience and foreseeable developmental pressures are listed in Table 19. The Nassau County, Suffolk County, and Bi-County totals are lower than those obtained by the cohort-survival method. Although the small area forecasts may appear unduly conservative they offer a measure of the more or less inevitable population gains — those increases that will doubtless occur even with the efforts of Bi-County to develop economic opportunities and to enhance the quality of the environment.

C.3 Tri-State Regional Planning Commission Population Goals

Tri-State Regional Planning Commission has demographic estimates of population for most of the Long Island Sound study area. Their planning involves target goals reflecting policy decisions to limit growth in certain areas and to promote development in other, resulting with differences in modification of the Region's total capacity. The targets for planned capacity of population are:

	Population (000's)		Population (000's)
*Central Naugatuck	480	Bronx	1,698
Greater Bridgeport	416	*Brooklyn	2,724
*Housatonic Valley	389	*Manhattan	1,539
South Central	822	Queens	2,214
South Western	514	*Staten Island	514
Valley	139		
		*Dutchess	908
*Bergen	1,362	Nassau	1,594
*Essex	1,050	*Orange	1,291
*Hudson	621	*Putman	229
*Middlesex	1,472	*Rockland	428
*Monmouth	1,225	Suffolk	2,237
*Morris	794	Westchester	1,506
*Passaic	634		
*Somerset	597	Tri-State Region	28,093
*Union	696		

* - Outside LIS Region

C.4 Connecticut Office of State Planning

The Connecticut O.S.P. published a set of population projections in January 1970. These drew heavily upon outgoing work stretching back into the mid 1960's. The county and town projections were derived from state employment

Appendix Table 19:   County and Subcounty Population Projections, 1980-2020;
Nassau-Suffolk Regional Planning Commission

Area	PROJECTED POPULATION		
	1980	2000	2020
Nassau County	1,518,500	1,584,500	1,691,500
Glen Cove City	28,500	29,500	31,500
Hempstead	850,000	885,000	935,000
Long Beach City	35,000	40,000	45,000
N. Hempstead Town	250,000	260,000	280,000
Oyster Bay Town	355,000	370,000	400,000
Suffolk County	1,542,000	2,285,000	2,640,000
Babylon	240,000	290,000	290,000
Brookhaven	425,000	810,000	890,000
East Hampton	15,000	55,000	85,000
Huntington	240,000	285,000	290,000
Islip	360,000	390,000	400,000
Riverhead	32,000	95,000	175,000
Shelter Island	2,000	7,000	11,000
Smithtown	160,000	172,000	179,000
Southampton	45,000	116,000	200,000
Southhold	23,000	65,000	120,000

forecasts based on projected demands for goods and services.[1] Population
forecasts were prepared based on employment, assumed unemployment rates,
assumed participating ratios, and adjustments for personnel in the Armed
Forces.   This set is now in the process of being updated to take into account
results of the 1970 Census as well as planning capacities (Table 20).

C.4   Summary

        The various projections discussed earlier in this appendix are
presented in a comparison format in Tables 21 and 22.   The general conclusion
to be drawn from this comparison is that the absolute difference between the
OBERS Series E baseline projection is very small, with the exception of
Suffolk County in 2020.

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    [1] Employment forecasts were prepared through the use of an input-output
model by Dr. Charles L. Leven, of Washington University, St. Louis, Mo. and
the Conn. Interregional Planning Program.   See the Connecticut Socio-Economic
Growth Model, CIPP Staff Paper, 1965.

TABLE 20 : Population Data for Connecticut Towns and Counties in the Long Island Study Area
and Projections for 1980, 1990 and 2000.1/

County - Town	1960	1970	1980	1990	2000
Fairfield County	653,589	792,814	874,562	937,755	970,755
*Bethel	8,200	10,945	13,205	15,436	17,555
Bridgeport	156,748	156,542	158,313	158,313	158,313
*Brookfield	3,405	9,688	12,693	15,705	18,606
Danbury	39,382	50,781	54,964	59,106	63,026
*Darien	18,437	20,411	18,720	16,983	16,278
Easton	3,407	4,885	4,768	4,571	5,074
Fairfield	46,183	56,487	66,172	71,844	71,844
Greenwich	53,793	59,755	64,739	68,060	68,060
Monroe	6,402	12,047	14,774	17,210	19,499
New Canaan	13,466	17,455	21,296	24,858	25,923
*New Fairfield	3,355	6,991	8,926	10,705	12,378
*Newtown	11,373	16,942	20,212	23,373	26,302
Norwalk	67,775	79,113	86,354	93,120	96,697
'Redding	3,359	5,590	7,329	9,044	10,691
*Ridgefield	8,165	18,188	20,121	22,928	25,539
Shelton	18,190	27,165	33,029	38,773	44,185
*Sherman	825	1,459	1,632	1,811	1,909
Stamford	92,713	108,798	112,529	114,358	113,856
Stratford	45,012	49,775	57,626	60,353	60,353
Trumbull	20,379	31,394	39,615	46,685	48,227
Weston	4,039	7,417	9,928	11,524	11,524
Westport	20,955	27,414	32,064	35,432	35,432
Wilton	8,026	13,572	15,553	17,563	19,484
New Haven County	660,315	744,948	871,073	990,540	1,089,630
Ansonia	19,819	21,160	21,544	21,544	21,544
*Beacon Falls	2,886	3,546	6,686	9,884	13,082
Bethany	2,384	3,857	6,508	9,236	11,970
Branford	16,610	20,444	25,819	31,178	36,317
*Cheshire	13,383	19,051	25,800	32,729	39,520
Derby	12,132	12,599	15,817	18,996	21,174
East Haven	21,388	25,120	31,228	37,237	33,362
Guilford	7,913	12,033	15,568	19,059	22,393
Hamden	41,056	49,357	58,771	68,566	78,115
Madison	4,507	9,768	12,354	14,960	17,496
Meridan	51,580	55,959	63,947	72,149	79,962
*Middlebury	4,785	5,542	7,996	10,490	12,962
Milford	41,662	50,858	61,246	69,315	69,315
*Naugatuck	19,511	23,034	27,463	31,983	36,349
New Haven	152,048	137,707	139,353	141,496	143,607
North Branford	6,771	10,778	15,581	20,401	25,099
North Haven	15,935	22,194	28,257	34,462	40,118
*Orange	8,547	13,524	20,937	24,187	24,187
*Oxford	3,292	4,480	6,095	7,641	9,119
*Prospect	4,367	6,543	10,223	13,877	17,452
Seymour	10,100	12,776	16,911	21,060	25,092
*Southbury	5,186	7,852	9,825	11,811	13,739
Wallingford	29,920	35,714	42,274	48,928	55,300
Waterbury	107,130	108,033	117,701	127,509	137,134
West Haven	43,002	52,851	54,224	54,224	54,224
*Wolcott	8,889	12,495	16,984	21,479	25,818
Woodbridge	5,182	7,673	11,961	16,139	20,180
New London County	185,745	230,654	277,654	325,182	371,186
Bozrah	1,590	2,036	3,303	4,501	5,663
Colchester	4,648	6,603	9,144	11,597	13,933
East Lyme	6,782	11,399	14,158	16,904	19,530
Franklin	974	1,356	1,827	2,267	2,654
Griswold	6,472	7,763	9,011	10,333	11,549

TABLE 20 : Population Data for Connecticut Towns and Counties in the Long Island Study Area
            and Projections for 1980, 1990 and 2000 (Cont'd)

County - Town	1960	1970	1980	1990	2000
Groton	29,937	38,244	40,479	42,530	44,897
*Lebanon	2,434	3,804	4,261	4,581	4,739
Ledyard	5,395	14,837	17,669	20,837	23,825
Lisbon	2,019	2,808	3,976	5,135	6,268
Lyme	1,183	1,484	2,245	2,912	3,555
Montville	7,759	15,662	19,409	23,090	26,569
New London	34,182	31,630	33,498	35,731	38,196
N. Stonington	1,982	3,748	7,401	11,139	14,832
Norwich	38,506	41,739	48,396	55,497	62,307
*Old Lyme	3,068	4,964	6,916	8,920	10,911
Preston	4,992	3,593	4,827	6,043	7,212
Salem	925	1,453	2,405	3,475	4,504
Sprague	2,509	2,912	4,048	5,229	6,430
Stonington	13,969	15,940	20,166	24,397	28,473
Voluntown	1,028	1,452	1,863	2,015	2,015
Waterford	15,391	17,227	22,652	28,049	33,224
Middlesex County	88,865	115,018	150,020	185,120	213,203
Chester	2,520	2,982	4,707	6,541	8,404
Clinton	4,166	10,267	12,881	15,554	18,194
*Cromwell	6,780	7,400	13,297	19,139	24,784
Deep River	2,968	3,690	11,218	13,673	16,096
*Durham	3,096	4,489	6,024	8,382	10,701
*East Haddam	3,637	4,676	5,078	5,556	5,793
*East Hampton	5,403	7,078	6,108	7,769	9,405
Essex	4,057	4,911	8,919	10,772	12,573
*Haddam	3,466	4,934	6,605	8,256	9,829
Killingsworth	1,098	2,435	5,880	6,750	7,497
*Middlefield	3,255	4,132	4,315	6,203	8,097
*Middletown	33,250	36,924	3,299	2,770	3,035
Old Saybrook	5,274	8,468	44,315	51,250	51,250
*Portland	7,496	8,812	11,324	14,143	16,840
Westbrook	2,399	3,820	6,050	8,362	10,705

1/ Source: Historical data from Census of Population. Projections are from CIPP town distribution
 model, July 1973 run, Connecticut Planning & Budgeting Division.

*Towns outside LIS region, but part of adjacent counties.

TABLE 21: Population data for Counties in the Long Island Sound Study Area, 1970 and Alternative projections through 2020.

			COUNTY				
PROJECTION & YEAR	Nassau	Suffolk	Westchester	Fairfield	Middlesex	New Haven	New London
1970	1,428,838	1,127,030	894,100	792,814	115,018	744,948	230,654
1980							
OBERS Series C	1,662,200	1,912,200	1,045,000	934,100	146,000	877,100	271,300
OBERS Series E	1,580,400	1,635,900	994,700	893,900	139,700	851,400	259,300
N.Y. OPS	1,528,231	1,515,190	989,295				
Bi-County	1,513,500	1,542,000					
Tri-State	1,563,900	1,375,300	1,065,900				
Conn. OSP				874,562	150,020	871,073	277,654
1990							
OBERS Series C	1,924,300	2,772,000	1,159,200				
OBERS Series E	1,677,000	2,146,800	1,059,600				
N.Y. OPS	1,649,572	1,970,291	1,093,056				
Tri-State	1,694,100	1,671,500	1,249,300				
Conn. OSP				937,755	185,120	990,540	325,182
2000							
OBERS Series C	1,923,000	3,312,000	1,266,000	1,239,700	216,200	1,152,200	362,800
OBERS Series E	1,710,500	2,506,900	1,106,400	1,068,500	196,200	962,100	312,700
N.Y. OPS	1,690,995	2,279,006	1,193,079				
Bi-County	1,584,500	2,225,000					
Conn. OSP	--	--	--	970,755	213,203	1,089,630	371,186
2020							
OBERS Series C	2,133,000	5,280,000	1,492,000	1,612,000	301,000	1,464,000	472,000
OBERS Series E	1,794,000	3,380,000	1,138,000	1,202,000	224,000	1,107,000	352,000
Bi-County	1,691,700	2,640,000					
N.Y. OPS	1,767,400	2,433,300	1,349,400				

APPENDIX TABLE 22:   Index of Population Change, Alternative Projections, 1970-2020,
                     Long Island Sound Study Area

PROJECTION	Nassau County				Suffolk County			
	1980	1990	2000	2020	1980	1990	2000	2020
	———————————————————1970 = 100————————————————————							
OBERS Series C	116.33	127.71	134.58	148.93	169.67	246.04	338.23	530.60
OBERS Series E	110.61	117.37	120.34	125.56	145.14	190.48	230.42	299.90
N.Y. O.P.S.	106.96	115,45	118.35	123.69	134.44	175.53	211.09	249.61
Bi-County	106.28		110.89	118.38	136.82		202.75	234.24
Tri-State	109.45	112.27			122.02	148.31		

PROJECTION	Westchester County			
	1980	1990	2000	2020
	——————————1970 = 100————————			
OBERS Series C	117.31	129.54	141.59	166.87
OBERS Series E	111.25	118.51	123.74	132.87
N.Y. O.P.S.	110.65	122.35	133.44	149.91
Bi-County				
Tri-State	119.20	139.73		

PROJECTION	Fairfield County			Middlesex County		
	1980	2000	2020	1980	2000	2020
	———————————————1970 = 100————————————————————					
OBERS Series C	117.82	156.37	203.45	126.94	187.97	261.70
OBERS Series E	112.75	134.77	251.74	121.46	141.97	194.75
Conn. O.S.P.	110.31	122.44		130.43	185.36	

PROJECTION	New Haven County			New London County		
	1980	2000	2020	1980	2000	2020
	———————————————1970 = 100————————————————————					
OBERS Series C	117.74	154.67	199.21	117.62	157.29	205.07
OBERS Series E	112.68	133.31	148.60	112.59	135.57	153.04
Conn. O.S.P.	116.93	146.27		120.38	160.93	